WHEN DOES THE INTERNAL AUDIT FUNCTION ENHANCE AUDIT COMMITTEE EFFECTIVENESS?

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TABLE OF CONTENTS

List of Figures **5**

List of Tables **6**

Abstract **7**

I. Introduction **8**

II. Background and Hypothesis Development **13**

Audit Committees 13

Internal Audit Functions 14

Audit Committee and Internal Audit Function Relations 15

Hypotheses 16

III. Research Design **21**

Measurement of IAF-Related Variables 21

NYSE Setting 22

Sample Selection 23

Model Description 25

IV. Results **26**

Tests Using the NYSE Setting 26

Tests Using Detailed Analysis of AC Charter Contents 30

Loan Analyses 35

Additional Tests 37

Robustness 37

V. Conclusion **38**

Appendices **40**

References **59**

LIST OF FIGURES

Figure 1: Time Trend of IA_INDICATOR by Stock Exchange **44**

Figure 2: Time Trend of RESTATEMENT **45**

LIST OF TABLES

Table 1: Sample Selection **46**
Table 2: Descriptive Statistics and Correlations **47**
Table 3: The Financial Reporting Reliability Effects of the 2004 NYSE Rule Change **49**
Table 4: The Financial Reporting Reliability Effects of the 2004 NYSE Rule Change **51**
Table 5: Description of Detailed AC Charter Data **52**
Table 6: The Associations Between IAF Factor Variables and RESTATEMENT **54**
Table 7: The Moderating Effects of IAF Independence **55**
Table 8: The Moderating Effects of AC 'Busyness' **56**
Table 9: The Association Between IAF Variables and Loan Spreads **57**
Table 10: Loan Spreads Around the 2004 NYSE Rule Change **58**

Abstract

I examine whether audit committees (ACs) improve financial reporting reliability by utilizing an internal audit function (IAF) as a resource. By exploiting data in AC charters, I construct novel measures of how and the extent to which ACs utilize IAFs. I first document an improvement in financial reporting reliability (fewer restatements) for firms that introduce an IAF under a NYSE mandate. This reporting improvement is concentrated among firms with ACs that utilize the new IAF significantly. Next, using more precise, hand-coded measures of IAF utilization, I show that the value of the IAF as a resource to the AC increases when (1) the AC meets privately with the IAF to discuss the activities of the IAF and relevant internal audit findings and ensures open communication between them, (2) the AC promotes the independence of the IAF, and (3) AC members are stretched thin with multiple board positions. Finally, I document an economic benefit to utilizing the IAF as a resource in the form of lower loan spreads.

I. Introduction

I study whether financial reporting reliability improves when audit committees (ACs) utilize internal audit functions (IAFs) as a resource in executing their financial statement oversight responsibilities. Given the important role ACs play in promoting financial disclosure quality in financial markets (e.g., DeFond and Jiambalvo 1991; Klein 2002), shareholders, debtholders, regulators, and other market participants have an interest in understanding the factors that determine AC effectiveness in monitoring management. Driven by data availability, prior research on AC effectiveness focuses on structural committee characteristics, including the size of the AC and its members' expertise and independence (DeFond and Zhang 2014). While this research has yielded important insights, recent work suggests that these structural characteristics are not by themselves adequate to ensure monitoring quality (e.g., Kim and Klein 2017; Klein 2018). There remains much to learn about how actual AC activities and processes inform the quality of financial reporting oversight (Larcker and Tayan 2011).

Governance professionals consider utilization of the IAF one of the most vital of AC activities (PwC 2016; KPMG 2017). Consistent with this, regulators have repeatedly proposed requirements that firms maintain IAFs that interface with ACs (SEC 2003b, 2013). While the SEC approved such a mandate for NYSE firms in 2003, a NASDAQ proposal received significant pushback from issuers and was withdrawn (SEC 2003b, 2013). Many constituents objected because of a perceived unfavorable cost-benefit trade-off (e.g., Driscoll 2015; Hill 2013). While the costs of utilizing an IAF can be estimated (e.g., Driscoll 2015), the benefits remain unclear to regulators and markets.[1]

[1] The Institute of Internal Auditors provides customized aggregated benchmarking data including information on IAF costs through its Audit Intelligence Suite. Also, in 2015 survey results, the American Productivity and Quality Center reported median internal control process costs (which encompass IAF costs) of $0.73 for every $1,000 in revenue (APQC 2015).

I propose that AC utilization of the IAF may be especially important for financial reporting reliability because such a process can mitigate limitations that the AC suffers otherwise.[2] In particular, while AC independence as mandated (SEC 2003a) improves the quality of AC oversight in some ways (e.g., Klein 2002), it can restrict committee members' familiarity with the processes that inform the financial statements. Furthermore, AC members are limited in the attention they can devote to understanding and monitoring any accounting or reporting process (Ernst & Young 2014; IIA 2016). For these reasons, the AC necessarily relies on a source of inside information in order to provide informed oversight over financial reporting (DeZoort, Hermanson, Archambeault, and Reed 2002; Hill 2013). Among the potential sources of such information (including management, internal auditors, and external auditors), the IAF stands out as advantageously positioned to provide information that reflects both inside expertise and objectivity (PwC 2017).[3] By utilizing the IAF, the AC gains access to this important information. Based on these arguments, I hypothesize that financial reporting reliability improves with the extent to which the AC utilizes the IAF as a resource.[4]

Alternatively, if the AC can obtain the information it needs to properly monitor financial reporting from other sources (including management and external auditors), then utilizing the IAF as an information resource may not have an impact. Furthermore, I expect the benefits of utilizing

[2] ACs can utilize multiple resources when overseeing financial reporting. As examples, an AC might utilize reports from external auditors regarding audit procedures performed, discussions with accounting managers about significant accounting treatments, or reviews from the IAF on the status of internal controls throughout the firm.

[3] As part of its 'mandatory guidance', The Institute of Internal Auditors lists objectivity and freedom from undue influence as a Core Principle for the Professional Practice of Internal Auditing (IIA 2017). The majority of IAFs report directly to the AC as a way to improve independence from management (Christ, Masli, Sharp, and Wood 2015). Several studies address the importance of IAF objectivity, including Christ et al. (2015) and Abbott, Daugherty, Parker and Peters (2016).

[4] The IAF also stands to gain from strong AC-IAF relations. To be effective monitors of financial reporting and internal controls, the IAF relies on a source of authority vis-à-vis management. The AC can endow the IAF with the authority it needs in order to see reporting fixes and improvements through to implementation. Anecdotally, 11 internal auditors I surveyed in 2019 all agreed that the IAF can be more effective in its auditing responsibilities when supported by the AC.

the IAF to vary in the following cross-sections. First, since internal auditors can sometimes feel uncomfortable conveying sensitive information to the AC (Chambers 2015), I expect important reporting issues to be raised and addressed more readily when the AC creates an atmosphere of free communication in which internal auditors feel comfortable reporting *all* findings to the AC. Second, the quality of the information provided to the AC by the IAF may improve if the AC works to promote the independence of the internal auditors, because undue influence from management can compromise IAF objectivity. Third, AC members with ample time to dedicate to their own monitoring activities may benefit relatively less from information provided by the IAF as compared to very busy AC members who rely more heavily on the IAF.

I use AC charters to measure the extent to which ACs utilize the IAF as a resource. Between 2000 and 2006, publicly-traded firms were required by the SEC to include their AC charter in their proxy filing at least once every three years (SEC 2000, 2006), allowing me to gather a comprehensive sample of more than 10,000 AC charters. These charters describe the AC's authority and responsibilities and exhibit significant variation in whether and to what extent they discuss the AC's interaction with the IAF.[5] With this data, I identify companies with ACs that do (or do not) utilize an IAF and measure the extent of IAF utilization.

To examine whether AC utilization of an IAF impacts financial reporting reliability, I exploit an exogenous mandate to implement an IAF. In 2003, the SEC approved a rule proposed by the NYSE to require that all NYSE-listed firms create and maintain an IAF by 2004. Using a difference-in-differences design, I examine changes in the likelihood of a restatement around this rule change for firms that maintained an IAF through my entire sample period (early adopters),

[5] It is the AC's responsibility to adopt a charter and to review it on an annual basis. The charter and any changes thereto must be approved by the board of directors. (SEC rulemaking file nos. SR-AMEX-99-38, SR-NYSE-99-39, and SR-NASD-99-48).

versus firms with AC charters that first mention the IAF after the rule change in 2004 (compliers). I find that relative to early adopters, compliers exhibit a significantly greater decrease in the likelihood of a restatement after the rule change. Importantly, I also find that this improvement in reporting reliability is driven not by the presence of a new IAF alone, but also by significant AC utilization of the new IAF. To mitigate the effects of differences in observable attributes in these tests, I weight my sample using entropy balancing and find even stronger results.[6]

Next, to capture the nuance in how ACs utilize IAFs and examine whether certain kinds of interactions matter more, I manually read a random sample of over 1,000 charters and code each IAF reference individually (see Appendix B). This allows me to identify ACs that specifically state their duty to meet regularly with the IAF, to consult with the IAF regarding significant accounting matters, to review the scope and results of IAF audits, to ensure IAF independence and authority, and to interact with the IAF in numerous other ways. I use this rich data to further explore how ACs can improve their monitoring by utilizing the IAF. In particular, I find that financial reporting reliability is greater when ACs meet regularly in private session with the IAF to review the scope of their work and their audit findings and recommendations. Consistent with my expectations, this association strengthens when (1) the AC commits to promoting free and open communication with the IAF, which encourages the flow of sensitive information, (2) the AC preserves the value of the IAF as an informational resource by promoting IAF independence from management, and (3) AC members are very busy with multiple other board positions and thus rely more heavily on input from the IAF.

[6] My approach is akin to that of Lennox (2016), who examines the effect of a PCAOB regulation effective in 2005. Lennox (2016) identifies treatment firms as those that needed to comply with the regulation and control firms as early adopters for which the rule had little effect. He shows that his results are robust to running difference-in-differences tests on an unmatched sample as well as a propensity score-matched sample (effectively weighting observations at 0 or 1). I follow this approach, except that I entropy balance observations (using continuous weights), which allows covariate balance while retaining all observations to maximize statistical power.

I take further advantage of my data and setting to investigate whether utilizing the IAF has economic implications. Consistent with prior research that establishes a negative association between accounting/audit quality and the cost of capital, I predict that financing costs decrease when the AC utilizes the IAF.[7] I focus here on private lenders because they are the most significant source of capital for firms (e.g., Arena 2011) and have significant incentive and ability to monitor management and the reporting process. To examine this question, I merge my AC charter database with terms of private loan agreements from DealScan. I find that utilizing the IAF is associated with lower borrowing costs. For example, firms with AC charters describing at least some utilization of the IAF have loan spreads that are 31 basis points lower than firms that describe no IAF utilization. Furthermore, conditional on the AC having access to an IAF, the extent of IAF utilization is also negatively associated with loan spreads. I interpret these results as evidence that lenders perceive the benefits of ACs utilizing the IAF, resulting in cost savings to firms placing private debt.[8]

This study contributes to the AC literature by highlighting the IAF as an important resource to the AC in discharging its duty to promote internal control and reporting integrity (PwC 2016). While numerous studies have examined the role of independence and expertise in determining AC effectiveness (e.g., Klein 2002; Abbott, Parker, and Peters 2004; Krishnan 2005; Cohen et al. 2014), little is known about the influence of other important factors, like board processes (DeFond and Zhang 2014; Larcker and Tayan 2011). I highlight AC utilization of the IAF as an important board process with significant implications for monitoring quality.

[7] See for example Aobdia, Lin, and Petacchi (2015), Bharath, Sunder, and Sunder (2008), Francis, LaFond, Olsson, and Schipper (2005) and Minnis (2011).

[8] I also examine changes in loan spreads around the NYSE internal audit mandate, finding that firms that adopted an IAF at the time of the mandate experienced a decrease in loan spreads at that time relative to firms that had been utilizing an IAF all along. See a description of these tests and results in Section IV.

I also contribute to the IAF literature in several ways (e.g., Prawitt, Smith, and Wood 2009; Abbott et al. 2016; Christ et al. 2015; Lin, Pizzini, Vargus, and Bardhan 2011; Ege 2015). First, my study informs the debate regarding the value of implementing an IAF by quantifying important financial reporting and economic implications of the NYSE mandate. I am the first to document benefits that arise when regulators require IAFs and when ACs utilize the IAF as a resource. Second, I provide evidence that IAF effectiveness is determined not only by direct IAF characteristics (like IAF budgets and internal auditor quality) but also by AC-IAF relations. My results suggest the AC plays a role in fostering the effectiveness of the IAF. Third, the dataset and measures introduced in this study are unique and can complement extant IAF studies which rely heavily on small-sample survey data (by mitigating limitations related to response bias, statistical power, and generalizability).

The findings of this paper should be of interest to regulators considering IAF mandates but with incomplete information as to the implications for financial reporting, to board members working to enhance audit committee effectiveness, and to managers struggling to gauge whether the benefits of implementing an IAF outweigh the costs. My evidence suggests that mandating IAF adoption and utilizing the IAF as a resource to the AC improve the reliability of financial reporting and lower debt contracting costs.

II. Background and Hypothesis Development

Audit Committees

Academic literature commonly discusses AC effectiveness in terms of a framework that includes the committee's (1) composition, including independence and expertise, (2) authority, (3) diligence, and (4) resources (Cohen, Hoitash, Krishnamoorthy, and Wright 2014; DeZoort et al. 2002). In general, there is broad-based evidence that AC independence and expertise are associated

with many different control, audit, and reporting outcomes (e.g., Klein 2002; Abbott, Parker, and Peters 2004; Krishnan 2005; Cohen et al. 2014).[9] Despite the difficulty in measuring AC authority and diligence, some studies have shown that these dimensions also affect financial reporting quality (e.g., Badolato, Donelson, and Ege 2014; Ashraf, Choudhary, and Jaggi 2020; Bratten, Causholli, and Sulcaj 2019).[10]

My study relates closely to the resources component of AC effectiveness. AC resources include an adequate number of committee members, as well as access to management, external auditors, and internal auditors (DeZoort et al. 2002). Prior studies address the effects of committee size, with weak results.[11] Furthermore, studies examining AC access to auditors and other resources are rare, largely due to data limitations. In this study, I focus on ACs' utilization of the IAF as a critical element of the resources component of AC effectiveness. Current AC guidance literature asserts the IAF's position as a vital resource to the AC. For example, PwC (2016, 8) states that the IAF can be an advisor in helping the AC meet its objectives, calling the IAF "a critical factor in the audit committee's effective oversight." KPMG (2017, 61) asserts the same sentiment, saying, "Internal audit is likely to be the single most significant resource used by the audit committee in helping the governing body to discharge its responsibilities." I seek to examine how the AC can improve reporting reliability by utilizing the IAF as a resource.

Internal Audit Functions

In recent years, practitioners and regulators have sharpened their focus on internal audit functions as a vital component of corporate governance (e.g., AICPA 2008; IIA 2017; NYSE

[9] More recent work questions whether fundamental AC requirements (like independence) produce their intended effects. For example, Kim and Klein (2017) find no significant responses in financial reporting quality measures around the 1999 rule change to require 100% independent ACs, and no evidence that investors valued the change.
[10] For reviews of the AC literature, see Bédard and Gendron (2010) and DeFond and Zhang (2014).
[11] For example, Badolato et al. (2014) find no relation between AC size and financial irregularities. Similarly, Bruynseels and Cardinaels (2013) find no relation between committee size and discretionary accruals or material weaknesses.

2018). Academic researchers have followed suit as an expanding literature has examined the importance of IAFs to internal controls and financial reporting. For example, Prawitt et al. (2009) find a negative relation between IAF quality and certain measures of earnings management. Lin et al. (2011) find that internal control weakness disclosures vary with IAF attributes. Ege (2015) provides evidence that management misconduct is reduced when IAF quality is high. This literature has often modeled IAF quality as a function of direct IAF characteristics like auditor certifications, experience, training, budget size, and reporting lines.

Researchers acknowledge that despite the intuition that IAFs should positively impact controls and financial reporting quality, such research is still relatively new and the overall empirical evidence is not strong (Abbott et al. 2016; DeFond and Zhang 2014). This may be partly because IAF influence and effectiveness are likely determined by numerous inputs, only some of which are captured by the direct IAF characteristics discussed above. In my study, I exploit variation in the degree to which the AC and the IAF work together, asserting that this is an input to IAF quality that prior literature has not adequately addressed.

Audit Committee and Internal Audit Function Relations

Prior small-sample studies find a relationship between certain AC characteristics and the degree of IAF interaction with the AC (in determinants-type tests). For example, ACs that are more independent and have more accounting expertise are more likely to meet with the IAF, hold longer meetings with the IAF, and review the results of the IAF program (e.g. Raghunandan, Rama, and Read 2001; Goodwin and Yeo 2001; Goodwin 2003).

Some studies use IAF reporting relationships to measure IAF independence, because IAFs that report directly to the AC should be more independent from management (e.g., Prawitt et al. 2009; Christ et al. 2015; Ege 2015). Abbott et al. (2016) use finer data from a survey of 189 internal

auditors to measure IAF independence (accumulating responses regarding the amount of influence exerted by the AC versus management on [1] IAF reporting lines, [2] the authority to terminate the chief internal auditor, and [3] determination of the IAF budget). The authors report that discretionary accruals are lower when IAF competence and independence coexist. My study complements Abbott et al. (2016) and differs in important ways. Whereas Abbott et al. (2016) examine IAF independence, I examine how and the extent to which the AC utilizes the IAF as a resource. Moreover, by examining restatements instead of accruals, I provide evidence on whether utilizing the IAF can reduce material misreporting.

I focus on the IAF as an AC resource for several reasons. First, I argue that among the potential information resources an AC could utilize, the IAF is most advantageously positioned to provide objective inside information. Second, while much of the AC's interaction with the external auditor is imposed by Congress, auditing standards, and stock exchanges (e.g., Sarbanes-Oxley Act of 2002, SAS 61, SR-NYSE-2002-33, SR-NASD-99-48) and so exhibits limited variation across firms, the extent of the AC's utilization of the IAF remains largely discretionary and exhibits significant variation. Third, while the visibility and perceived importance of the IAF has risen over time (Abbott et al. 2016; Morgan 2016), many firms (and ACs) still choose not to utilize an IAF and empirical evidence regarding the IAF's impact on reporting quality is limited (Abbott et al. 2016).

Hypotheses

The financial reporting impact of utilizing the IAF as a resource to the AC

I hypothesize that AC monitoring of financial reporting can be improved when the AC utilizes the IAF because the respective strengths and weaknesses of these two entities complement each other. AC members hold authority, broad expertise, and a high-level perspective of reporting

processes, goals, and events. Yet, because ACs are independent of financial management, distanced from day-to-day financial reporting processes, and limited in the detailed attention they can afford any individual accounting or reporting process, they are not optimally positioned to identify errors and irregularities. For this, they necessarily rely on management as well as internal and external auditors. The IAF may be the most important source of objective inside information by virtue of their professional commitment to objectivity (IIA 2017) combined with day-to-day exposure to accounting processes and personnel at all levels of the firm. Indeed, effective IAFs can be viewed by committee members as their "eyes and ears", with access to the organization that puts them in a unique position to be a valued resource to the AC, as objective insiders (Gramling, Maletta, Schneider, and Church 2004; PwC 2016). For example, an AC chairperson I interviewed stated the following in reference to the committee's reliance on the IAF for internal control information:

> "And of course, the internal auditors are always doing all of their work. We get all their reports and summaries of trends in internal controls by business unit, by function, by location… who's been naughty, who's been nice."

When the IAF informs the AC with objective inside information, I expect financial reporting benefits, because through such activity accounting issues can be identified, raised and addressed more readily throughout a reporting period, decreasing the likelihood of material errors in periodic financial reports.

However, if the AC can obtain the information it needs to properly monitor financial reporting from other sources, then utilizing the IAF as an information resource may not have an impact. For example, ACs may not benefit incrementally from utilizing the IAF if the AC is able to gather a mix of inside information from management and objective information from the external auditors. Consistent with this, some ACs (which quite often are populated with retired

partners of public accounting firms) feel that the information provided by the IAF is not as valuable as what they receive from the external auditors (Chambers 2017). If this is true, I may not observe any on-average association between utilization of the IAF and reporting reliability. I state my formal hypothesis in the alternative form as follows:

H1: *AC utilization of the IAF is associated with improved financial reporting reliability.*

I expect the association between AC utilization of the IAF and reporting reliability, if any, to vary with (1) the openness of communication between the IAF and AC, (2) the independence and authority of the IAF, and (3) the 'busyness' of the AC. I address these three possibilities in the hypotheses and analyses that follow.

The openness of communication

If benefits of utilizing the IAF as a resource to the AC occur because of the flow of meaningful (and potentially sensitive) information about accounting processes, internal controls, and management lapses, then the value of the IAF as a resource depends on the willingness of internal auditors to share that information. However, some internal auditors and AC members shy away from uncomfortable or sensitive discussions (Chambers 2015). Furthermore, management may feel uncomfortable with an IAF that provides an independent perspective on management's effectiveness (Chambers 2017). Since most IAFs 'serve two masters' (needing to satisfy management as well as the AC), internal auditors may be reluctant to provide important information to the AC if it reflects negatively on management.[12] Thus, if the AC fails to create an atmosphere of free communication in which internal auditors feel comfortable reporting *all*

[12] Anecdotally, of 11 internal auditors I surveyed in 2019, 5 (45%) did not agree with the statement that they "feel more comfortable raising important issues to the audit committee than to management." Also, 4 respondents (36%) did not agree with the statement that they "are comfortable reporting management lapses to the audit committee."

findings to the AC, important reporting issues identified by the IAF will go unaddressed, resulting in lower financial reporting reliability. I state my second hypothesis in the alternative form:

H2: *The financial reporting reliability benefits of utilizing the IAF as a resource to the AC increase with the openness of communication between the AC and IAF.*

The independence and authority of the IAF

Auditing literature has long modeled external audit quality as a function of auditor independence from management (e.g. DeAngelo 1981). I follow Abbott et al. (2016) in applying this theoretical framework to internal auditors, and hypothesize that the value of the IAF as a resource to the AC hinges on the objectivity of the information internal auditors provide. Though internal auditors are not independent by regulation nor as independent as external auditors, they do uphold professional standards of objectivity (IIA 2017). The more resistant the internal auditor to management pressure, the greater the likelihood that IAF findings related to internal controls and financial reporting will be reported to the AC objectively and addressed.

In contrast to the AC, the IAF's duties include not only the monitoring of financial reporting and internal controls but also working with management to improve operational efficiencies. The IAF can be effective in its operational roles with support from management only, because incentives in this case are aligned. In the case of financial reporting, though, incentives of management may diverge from those of shareholders. Monitoring by the IAF can reduce associated agency costs, but only when the IAF is supported by the AC, because without such support IAF recommendations will be implemented at management's discretion. The AC can empower the IAF with authority, helping to enact improvements that the IAF on its own could not accomplish. For example, one IAF director states: "If the [audit] committee could articulate the importance of internal audit, that would elevate our role and importance" (PwC 2011).

In summary, I expect that financial reporting problems can be mitigated when the AC utilizes the IAF as a resource *and also* acts to protect the IAF's independence and promote their authority in the organization. By so doing, the AC can protect the quality of their resource - the information provided through utilizing the IAF.

However, prior literature provides some tension to these arguments. Norman, Rose, and Rose (2010) find in an experimental setting that internal auditors perceive greater personal threat when reporting high levels of risk directly to the AC as opposed to management. Because of this, internal auditors in their experiment reported lower levels of risk when reporting directly to the AC. If internal auditors experience heightened threat levels when the AC strengthens the independence of the IAF (to promote IAF reporting to the AC), then information flow may be hampered, reducing or eliminating the reporting reliability benefits. I state my third hypothesis in the alternative form:

H3: *The financial reporting reliability benefits of utilizing the IAF as a resource to the AC increase when the AC promotes the objectivity and authority of the IAF.*

The 'busyness' of the AC

Larcker, Richardson, and Tuna (2007) define corporate governance as "the set of mechanisms that influence the decisions made by managers when there is a separation of ownership and control" (pg. 964). Multiple entities monitor management in order to foster corporate decision-making in the interests of owners and to mitigate misreporting. In general, the more monitoring that exists, the less misreporting can occur, but when two monitors undertake redundant monitoring efforts, managerial misreporting is limited no further than if just one monitor existed – the second monitor's efforts are wasted (Pagano and Röell 1998).

Thus, the intensity of monitoring over financial reporting that is provided by the AC to begin with may provide one source of variation in the benefits of utilizing the IAF as a resource. In one

extreme, AC members devote so much time and attention themselves in monitoring financial reporting that they have no need for information provided by the IAF. In the other extreme, AC members are so busy or distracted (with other committee or board appointments, full-time jobs or other responsibilities), that they monitor management very little themselves. In the second case, relying on information provided by the IAF can achieve marginal disciplining of management that benefits reporting reliability. Thus, I expect the financial reporting reliability benefits of utilizing the IAF as a resource to the AC to occur most readily when ACs are busier and rely more heavily on monitoring provided by the IAF. I state my final hypothesis in the alternative form:

H4: *The financial reporting reliability benefits of utilizing the IAF as a resource to the AC increase with the busyness of the AC.*

III. Research Design

Measurement of IAF-Related Variables

I rely on AC charters to measure AC utilization of the IAF. These charters describe ACs' powers and responsibilities and are a required disclosure of all publicly-traded companies (SEC 2000). Charters serve as an instrument for establishing the AC's mandate and for helping stakeholders assess its activities (e.g., DeZoort et al. 2002; Kalbers and Fogarty 1993). The SEC states that the AC charter should be tailored to each company's specific circumstances (SEC 2000). Anecdotally, three AC chairs I interviewed confirmed without exception that they are careful to carry out every duty listed in their charter. Thus, I consider the AC charter a useful proxy for actual AC responsibilities and activities (Ashraf et al. 2020).

To measure the extent of IAF utilization by the AC, I first count the number of times the AC charter references the phrase "internal audit" (called *IA_COUNT*, or *LOG_IACOUNT* when logged). This variable exhibits significant variation. While approximately 22 percent of charters

include no mention of an IAF, the median value of *IA_COUNT* is five.[13] To separate observations with no reference to the IAF from those with one or more, I create *IA_INDICATOR*, set equal to one if *IA_COUNT* is greater than or equal to one, and zero otherwise. To study the effects of high levels of AC utilization of the IAF, I define an additional indicator variable, *HIGH_IACOUNT*, which is equal to one if *IA_COUNT* for a firm-year observation is at or above the sample median and zero otherwise.

NYSE Setting

In 2002 the NYSE proposed a rule to require that all NYSE-listed firms maintain an IAF. This proposal was published in 2002, approved by the SEC in 2003, and made effective as of 2004 (SEC 2003b). I use AC charters in context of this setting to identify two key groups of firms: *compliers* and *early adopters*. Compliers are NYSE firms that do not have an IAF prior to the NYSE mandate and so must implement a new IAF when the mandate becomes effective. Operationally, I identify compliers as those NYSE firms with AC charters that make no reference to an IAF prior to the mandate (*IA_INDICATOR* = 0) but make at least one IAF reference in the post-mandate period (*IA_INDICATOR* = 1). The complier firms form my treatment group. Specifically, for all observations of complier firms, I set the dummy variable *TREAT* equal to one.

Early adopters are firms that maintain an IAF throughout the entire sample period (both before and after the mandate). I identify early adopters as those NYSE firms with AC charters that make at least one reference to the IAF (*IA_INDICATOR* = 1) in the periods both before and after the regulation. I assume that these firms maintained an IAF that the AC utilized in some form prior to the NYSE rule implementation. Early adopters form my control group, meaning that for all observations of these firms, *TREAT* is equal to zero. Figure 1 illustrates the trend in

[13] These figures are based on the full sample of 10,165 charters I gather, and so do not correspond exactly to descriptive statistics in Table 2 (which are based on the final sample of NYSE firms used to test H1).

IA_INDICATOR over my sample period. Approximately 80 percent of AC charters of NYSE firms reference an IAF at the beginning of my sample period. This percentage increases concurrently with the announcement and approval of the IAF mandate (in 2002 and 2003). By 2004 (the effective date of the mandate), nearly 100 percent of NYSE firms reference an IAF in their AC charter.[14] By comparison, approximately 70-80 percent of non-NYSE firms reference an IAF in their charters.

Sample Selection

While AC charters are publicly available, no accessible database of charters exists. However, from 2000-2006 firms were required to include a copy of their charter in their proxy statement filing at least once every three years (SEC 2000, 2006).[15] Consequently, in order to build a repository of charters, I first identify the complete set of proxy filings on the SEC EDGAR archives between 2000 and 2006. I then manually access each filing, ascertain whether the filing includes a copy of the AC charter and if so, save the charter contents into a text file that can be linked to the issuing firm and year. The process yields 10,165 charter observations from 2000 to 2006.[16] I merge these charter data with Compustat such that year of the AC charter filing matches the fiscal year of the firm's financial data. After merging further with BoardEx, Audit Analytics, and Thomson Reuters databases, the resulting dataset is an intermittent time series of charter data (because firms were not required to include a copy of their charter each year) appended with financial, audit, and governance variables.

[14] In the post-mandate period, more than 98 percent of NYSE firms reference an IAF in their AC charter. Firms that do not comply with the mandate are removed from the sample.

[15] Effective November 2006, the requirement to include the charter in proxy statements was superseded by a rule designed to reduce the length of proxy statements and the potential for information overload. This rule allows firms to post their charter on their company website and simply refer to it in their proxy statement. As such, my sample period ends in 2006.

[16] I thank Musaib Ashraf and Preeti Choudhary for their assistance in gathering AC charters. The base sample of AC charters I use is the same as that used in Ashraf et al. (2020).

Table 1, Panel A provides a breakdown of my sample selection. Of the 10,165 charter observations in my base sample, I successfully merge 6,377 with Compustat, Thomson-Reuters, BoardEx, and Audit Analytics. To create the sample for the tests using the setting of the NYSE internal audit mandate (called 'NYSE sample'), I keep all NYSE observations with a charter, while removing all non-NYSE observations. I limit the sample to NYSE firms for difference-in-differences tests because the IAF mandate only applies to them. By limiting the sample, I estimate the within-exchange effect of the mandate.

To eliminate the possibility that a complier firm instituting an IAF in 2002 or 2003 in response to the NYSE proposal or the SEC ruling (that occurred during this time period) is inaccurately identified as an early adopter, I exclude all 2002 and 2003 observations from the sample.[17] After requiring data to compute the variables in my models, the final 'NYSE sample' used in difference-in-differences tests consists of 2,046 firm year observations.

Descriptive statistics for the NYSE sample are reported in Table 2, Panel A. The median number of references to the IAF in AC charters is eight. Eighteen percent of firm years in this sample are subsequently restated. On average, ACs have just over four members and meet seven times per year. Sixty-six percent of ACs have at least one member who qualifies as an accounting financial expert. These descriptives are in line with prior AC research (e.g., Badolato et al. 2014; Carcello, Hollingsworth, Klein, and Neal 2006; Dhaliwal, Naiker, and Navissi 2010; Krishnan and Visvanathan 2008). I report Pearson correlations in Panel B of Table 2. *TREAT* (i.e. observations of firms that waited until the mandate to adopt an IAF) is negatively correlated with the size, expertise, and independence of the AC and board of directors. There is no significant univariate

[17] This design choice is a trade-off, as dropping these years reduces measurement error in *TREAT* but also reduces sample size and power. Results are robust to only excluding 2003 observations, and to excluding no observations.

correlation between *RESTATEMENT* and *TREAT* (or *POST*). I explore these relations further in the multivariate analysis described in Section IV.

Model Description

I use a difference-in-differences design to test Hypothesis 1, modeling the change in the likelihood of a restatement between treatment and control groups when progressing from before the NYSE internal audit mandate to after. Formally stated, I estimate the following equation:

$$RESTATEMENT_{it} = \alpha_0 + \beta_1 TREAT_i + \beta_2 POST_t + \beta_3 TREAT_i * POST_t + \sum \beta_n Controls_{it} + \varepsilon_{it} \quad (1)$$

In this equation, $RESTATEMENT_{it}$ is an indicator variable equal to one if the financial statements for firm *i* in year *t* were subsequently restated, and zero otherwise.[18,19] $TREAT_i$ is an indicator variable equal to one for all observations of complier firms of the NYSE internal audit mandate and zero for all observations of early adopter firms, as described previously. $POST_t$ is an indicator variable equal to one for the years 2004-2006 (the effective period of the NYSE mandate) and zero for the years 2000-2001. As the difference-in-differences estimator, the coefficient on the interaction term $TREAT_i*POST_t$ (β_3) represents the difference between (a) the change in restatement likelihood for treatment firms from before to after the NYSE internal audit mandate, i.e., those firms that implemented an IAF in response to the rule and (b) the corresponding change in restatement likelihood for control firms, which maintained an IAF all along. In this way, I

[18] Since *RESTATEMENT* is a binary variable, I use a logistic model. To ensure my results are not driven by this design choice, I run all restatement analyses using a linear probability model as well. Results are consistent (un-tabulated but available upon request).

[19] I do not distinguish between material (Item 4.02 Non-Reliance) and immaterial restatements. *RESTATEMENT* equals one if either occurs. Since Item 4.02 restatements only occur beginning in 2004, I cannot examine them in the setting of the NYSE internal audit mandate.

compare firms that implement an IAF only when it was mandated to firms that did so before the mandate existed.[20]

I include in equation (1) three sets of control variables. First, to control for AC and other governance characteristics, I include the following variables (refer to Appendix A for variable definitions): the number of meetings the AC holds during the year (*AC_MEETINGS*), accounting expertise of AC members (*AC_EXPERTISE*), the number of AC members (*AC_SIZE*), the number of members of the board at-large (*BOARD_SIZE*), the independence of the board (*BOARD_INDEP*), the tenure of independent board members (*INDEP_DIR_TENURE*), duality of CEO responsibility (*CEO_CHAIR*), the busyness of the board (*BUSY_BOARD*), and institutional ownership of the firm (*INST_OWNERSHIP* and *INST_BLOCKHOLDERS*).

Second, I control for the following audit and auditor characteristics: internal control weaknesses (*MATERIAL_WEAKNESS*), modified audit opinions (*MODOP*), *AUDITORTENURE*, *AUDITOREXPERTISE*, *AUDITFEES*, *NONAUDITFEES*, and *BIGN*. Third, I include measures of firm characteristics, including *MTB*, *FIRMAGE*, *SIZE*, *FOREIGN*, *BUS_SEGMENTS*, *ISSUANCE*, *LEVERAGE*, *ROA*, *LOSS*, *ACQUISITION*, *RESTRUCTURE*, *INVENTORY*, and *ZSCORE*.[21] Finally, I include industry fixed effects (based on 2-digit SIC codes).

IV. Results

Tests Using the NYSE Setting

[20] An alternative design would be to compare NYSE treatment firms to a set of control firms that never implement an IAF. However, there are close to zero NYSE firms that never implement an IAF. Moreover, if I were to use NASDAQ firms with no IAF as a control sample, my treatment variable would be perfectly collinear with stock exchange, confounding any interpretation of *TREAT*.

[21] To ensure my results are not biased because of "over-controlling", I also estimate a parsimonious version of Equation (1) in line with the model of Badolato et al. (2014), controlling only for AC expertise, AC size, board size, board independence, CEO duality, institutional ownership, firm size, MTB, leverage, issuance and ROA. Results are consistent.

My first hypothesis predicts that financial reporting reliability improves when the AC utilizes the IAF. I begin exploring this hypothesis by visualizing the reporting reliability effects of the NYSE internal audit mandate. Figure 2 depicts the time trend of *RESTATEMENT* for compliers (*TREAT* = 1) separately from early adopters (*TREAT* = 0) from 1996 to 2010. Prior to the NYSE rule change (effective 2004), trends in restatements are parallel but higher for compliers (this difference is statistically significant in 1997, 2001, 2002, and 2004).[22] At the time of the rule change, compliers exhibit a steeper decline in restatement likelihood. Post-2004, the trends are no longer significantly different from each other.

Panel A of Table 3 presents the results of estimating Equation (1). In column 1, the coefficient on *TREAT* (β_1) is significantly positive ($p = 0.070$, marginal effect = 0.061), suggesting that in the pre-period, complier firms (those with no IAF) are more likely to issue material misstatements than firms with an IAF. The difference-in-differences estimator (β_3) is significantly negative ($p = 0.027$, marginal effect = -0.083). Thus, consistent with the graphic representation in Figure 2, complier firms exhibit a significantly steeper decline in restatement likelihood relative to early adopters. In the post-period, there is no significant difference between restatement likelihood of compliers and that of early adopters ($\beta_1 + \beta_3$ is insignificant). In combination, this evidence suggests that financial reporting reliability was poorer for firms without an IAF prior to the NYSE mandate and that implementing an IAF to comply with the mandate brought financial reporting reliability in line with that of firms that had been utilizing an IAF all along.

[22] To test the parallel trends assumption, I estimate the following logistic regression using the pre-regulation window only (e.g. Lennox 2016): $RESTATEMENT_{it} = \beta_0 + \beta_1 TREND_t + \beta_2 TREAT_i + \beta_3 TREND_t * TREAT_i + \varepsilon_{it}$. In this model, $RESTATEMENT_{it}$ and $TREAT_i$ are as defined previously, while $TREND_t$ is a count of the number of days from 1/1/2000 to the effective date of the NYSE IAF mandate (10/31/2004). Consistent with parallel trends, the β_3 coefficient is insignificantly different from zero (i.e., there is no significant difference in the trends in restatements between the treatment and control samples in the pre-regulation period).

To mitigate the possibility that differences in characteristics between the treatment and control groups (other than the IAF variables I analyze) may drive my results, I follow Lennox (2016) in weighting observations to minimize differences in observable characteristics.[23] In particular, I entropy-balance my sample such that the means of all control variables are equal. Using this balanced sample, I obtain similar results (as reported in column 2).[24] The evidence presented in Panel A of Table 3 can be interpreted in two ways. Consistent with my hypothesis, the observed financial reporting reliability improvement may arise because ACs have access to and utilize a new IAF, which improves the quality of their monitoring. Alternatively, firms that adopt an IAF may experience greater reporting reliability simply due to the stand-alone monitoring efforts of the new IAF (and not necessarily due to AC utilization of the IAF). I take the following additional steps to distinguish between these two possibilities.

If AC utilization of the IAF improves reporting reliability, I expect the reduction in restatements among complier firms to be strongest when the AC discusses significant utilization of the new IAF in AC charters in the post-regulation period. To test this, I estimate versions of Equation (1) having replaced the treatment variable with $HIGH\_TREAT_i$, which is equal to one for all observations for firms that make no mention of the IAF in their AC charter before the NYSE rule change in 2004 but are above the median number of IAF references in the AC charter after the rule change. I report results using this alternative treatment in Panel B of Table 3. Using both balanced and unbalanced samples, I continue to observe significant interaction terms (γ_3), but with

[23] I follow Lennox (2016) in weighting my sample, but take a different approach. While Lennox (2016) uses propensity score matching to match each treatment observation to a control observation (effectively weighting observations at one or zero to attain covariate balance), I use entropy balancing, which weights observations using a continuous weighting scheme to achieve covariate balance. One major advantage of this approach in my setting is that it does not reduce the sample like PSM and other matching techniques.

[24] Difference-in-differences results are robust to entropy balancing the mean, variances, and skewness of covariates. While this procedure matches effectively on observable characteristics, it does not rule out the possibility that unobservable differences between the treatment and control groups drive my results.

marginal effects roughly four times larger than those in Panel A (i.e., -0.086 versus -0.022). Furthermore, the total effects ($\gamma_1 + \gamma_3$) are now significantly negative. These results suggest that more significant AC utilization of a new IAF results in more significant financial reporting reliability improvements and rule out the possibility that IAF adoption alone drives the results in Panel A.

To quantify the financial reporting reliability improvement for complier firms with ACs that interact considerably with the new IAF separately from any improvement for complier firms with ACs that interact minimally with the new IAF (and to ascertain whether the difference is statistically significant), I implement a triple interaction model based on Equation (1). Specifically, I introduce the variable *HIGH_IACOUNT* to the equation, as follows:

$$RESTATEMENT_{it} = \delta_0 + \delta_1 TREAT_i + \delta_2 POST_t + \delta_3 HIGH\_IACOUNT_{it} + \delta_4 TREAT_i * POST_t + \delta_5 POST_t * HIGH\_IACOUNT_{it} + \delta_6 TREAT_i * POST_t * HIGH\_IACOUNT_{it} + \sum \beta_n Controls_{it} + \varepsilon_{it} \quad (2)$$

In this equation, $RESTATEMENT_{it}$, $TREAT_i$, $POST_t$ and all control variables are as previously defined, following Equation (1).[25] $HIGH\_IACOUNT_{it}$ is an indicator variable equal to one for charter observations above the sample median of *IA_COUNT*. If the effect of the IAF mandate on complier firms significantly strengthens when ACs utilize the new IAF at high levels, I expect δ_6 to be negative and significant. Table 4 presents the results of estimating Equation (2). As before, I provide results using both unbalanced (column 1) and entropy-balanced samples (column 2). In both columns, δ_6 is significantly negative. Furthermore, while the total effect of *TREAT* when *HIGH_IACOUNT* = 1 ($\delta_1 + \delta_4 + \delta_6$) is significantly negative, the total effect of *TREAT* when *HIGH_IACOUNT* = 0 ($\delta_1 + \delta_4$) is insignificant. I interpret these results as strong evidence that

[25] I omit the interaction term *TREAT*HIGH_IACOUNT* from Equation (2) because it is perfectly collinear with *TREAT*POST*HIGH_IACOUNT*. This occurs because *HIGH_IACOUNT* can only be zero in the pre-period for treatment firms. Thus, when *POST* equals zero, so does *TREAT*HIGH_IACOUNT*. When POST equals 1, the triple interaction simplifies to the double: *TREAT*HIGH_IACOUNT*.

complying with the IAF mandate only reduced restatement likelihood if such compliance was accompanied by significant utilization of the IAF by the AC. Simply adopting an IAF without instituting strong AC-IAF relations appears to have little impact on the reliability of financial reporting. In summary, the results in Tables 3 and 4 provide strong evidence in support of Hypothesis 1, i.e., that AC utilization of the IAF improves financial reporting reliability.

Tests Using Detailed Analysis of AC Charter Contents

To better understand the nature of interaction between the AC and the IAF and to test for the effects of different ways that ACs utilize IAFs (including tests of H2, H3, and H4), I select a random subsample of charters to read and code manually. Specifically, I begin with the sample of firms with data to compute all of the control variables in a restatement regression (i.e., requiring the control variables as described in Equation (1)), and randomly select 100 firms from each tercile of the distribution of firm size. I include all AC charters for these firms (n=923), along with charters (n=255) for firms that introduced an IAF at the time of the NYSE rule change in 2004 (i.e., firms with charters in 2001 that made no mention of the IAF, but had charters post-2004 that do mention the IAF). Table 1, Panel B presents the details of creating this final sample of 1,088 observations, which I refer to as the 'detailed sample'. For these charters, I read each reference to the IAF and assign it to one of 51 categories of possible IAF references. For example, I identify firms with ACs that state their duty to meet regularly with the IAF (73 percent), to consult with the IAF regarding significant accounting matters (31 percent), to review the scope and results of IAF audits (76 percent and 65 percent), to ensure IAF independence and authority (20 percent and 7 percent), and so on. See Appendix B for a full breakdown of the frequencies of the 51 different IAF references I analyze.

To make this data more tractable and to reduce concerns about multi-collinearity in the multivariate analysis that follows, I conduct a factor analysis that identifies five orthogonal factors with eigenvalues above one.[26] Table 5 presents the results of the factor procedure. Together, the factors explain 84 percent of the cumulative variance in the individual variables. Based on the correlations between each factor and the individual variables, I interpret them as follows, where the leading *F*s denote 'factor': (1) *F1_MEET/REVIEW*, (2) *F2_FINANCIAL*, (3) *F3_AUDIT*, (4) *F4_INDEP*, and (5) *F5_COMPLIANCE* capture the degree to which the AC (1) meets with and reviews the activities and recommendations of the IAF, (2) discusses the financial statements and alternative accounting treatments with the IAF, (3) reviews with the IAF any restrictions or problems experienced during their audits and any disagreements between the IAF and management or external auditor, (4) promotes the independence and authority of the IAF in the organization, and (5) reviews compliance and ethics matters with the IAF. In un-tabulated univariate analysis, I find that *F1_MEET/REVIEW* is significantly negatively correlated with *RESTATEMENT*, suggesting that AC monitoring of financial reporting is improved when ACs meet regularly with the IAF to discuss their activities and recommendations. I explore this further in the multivariate analysis that follows.

To examine the relation between the five factor variables and financial reporting reliability, I estimate versions of the following equation:

$$RESTATEMENT_{it} = \theta_0 + \theta_1 F1\_MEET/REVIEW_{it} + \theta_2 F2\_FINANCIAL_{it} + \theta_3 F3\_AUDIT_{it} + \theta_4 F4\_INDEP_{it} + \theta_5 F5\_COMPLIANCE_{it} + \sum_n \text{Controls}_{it} + \varepsilon_{it} \quad (3)$$

In this equation, the five factor variables are as described above and controls consist of the same control variables used in Equation (1), including industry fixed effects, as previously defined. I

[26] I use an orthogonal (Varimax) rotation in calculating the factors. This procedure identifies 6 factors with eigenvalues above one, but the 6th factor has a low eigenvalue (1.25) and is not correlated with any of the individual variables at 50 percent or more. I do not know how to interpret this factor and so I exclude it from the analysis.

also supplement Equation (3) with year fixed effects to control for variation across time that affects my entire sample.[27]

Results of estimating Equation (3) are presented in Table 6. In column 1, the coefficient on *F1_MEET/REVIEW* is significantly negative (p = 0.05, marginal effect = -0.029). This finding is consistent with the assertion of the IIA that the AC is best served by communicating in person and building relationships with internal auditors, and not just through written reports (Chambers 2017). In terms of economic significance, a one standard deviation increase in *F1_MEET/REVIEW* is associated with a 13.9 percent decrease in restatement likelihood relative to the sample mean of *RESTATEMENT*.[28] The coefficient on *F2_FINANCIAL* is also negative, though marginally significant (p = 0.11).[29] I interpret these results as evidence that financial reporting reliability improves when ACs communicate with IAFs through face-to-face meetings to discuss IAF activities and recommendations.

Test of Hypothesis 2 – The openness of communication

For my second hypothesis, I argue that the benefits of utilizing the IAF as a resource to the AC occur because of the flow of information between them which at times can be sensitive and that when ACs cultivate an environment in which internal auditors feel comfortable sharing sensitive information, the likelihood is lower that important reporting issues identified by the IAF will go unaddressed. To test this, I introduce the variable *OPEN_COM* to Equation (3), along with its interaction with all five factor variables. *OPEN_COM* is an indicator variable equal to one for

[27] I cannot perform difference-in-differences analyses using the 'detailed sample' because sample sizes become prohibitively small.

[28] I use the descriptive statistics (un-tabulated but available upon request) to calculate this economic significance as the marginal effect of *F1_MEET/REVIEW* (0.029) multiplied by the standard deviation of *F1_MEET/REVIEW* (0.940) scaled by the mean of *RESTATEMENT* (0.196).

[29] Unexpectedly, *F5_COMPLIANCE* is positively associated with *RESTATEMENT* (p = 0.06). One possible interpretation of this result is that IAF detection of compliance issues may result in more financial reporting fixes that take longer to implement, leading to more restatements (as compared to reporting oversight that results in timely corrections prior to issuing financial statements).

AC charters that state the AC's duty to maintain free and open communications among the AC, IAF, and external auditor, and zero otherwise. If ACs can proactively promote an environment wherein internal auditors communicate more openly, I expect IAF utilization to improve reporting reliability more when *OPEN_COM* = 1. Results are presented in column (2) of Table 6. I interpret the significantly negative interaction between *F1_MEETREVIEW* and *OPEN_COM* (p = 0.014, marginal effect = -0.079) as evidence that the benefits of meeting with the IAF are stronger when ACs commit to promoting open communication. A one standard deviation increase in *F1_MEET/REVIEW* (i.e., its total marginal effect when *OPEN_COM* = 1) is associated with a 39 percent decrease in the likelihood of restating (relative to the sample mean of *RESTATEMENT*).

Test of Hypothesis 3 – The independence and authority of the IAF

For my third hypothesis, I argue that the financial reporting reliability benefits of utilizing the IAF as a resource to the AC should increase when the AC promotes the objectivity and authority of the IAF. To test this hypothesis, I estimate Equation (3) with interactions between *F4_INDEP* and the four other factor variables. As reported in Table 7, the interaction between *F1_MEET/REVIEW* and *F4_INDEP* is significantly negative (p = 0.03, marginal effect = -0.037). This result is consistent with Hypothesis 3 and suggests that the value of the IAF as a resource to the AC is greater when the AC promotes the independence and authority of the IAF.

The factor variable *F4_INDEP* is driven largely by variation in whether ACs review IAF independence *and/or* authority (see factor loading in Table 5). I next examine which of these underlying variables (i.e., AC attention to IAF *independence* or *authority*) drive the result in Table 7. Specifically, I replace the independence factor variable with the two major underlying indicator variables: an indicator equal to one for AC charters that include the duty to promote IA independence (*REVIEW_IA_INDEP*) and an indicator equal to one for AC charters that include

the duty to review IA authority (*REVIEW_IA_AUTH*). Each of these underlying indicator variables is interacted with the four remaining factor variables. In un-tabulated analysis, I find a significantly negative coefficient on *F1_MEET_REVIEW*REVIEW_IA_INDEP* ($p = 0.052$), and a negative but insignificant coefficient on *F1_MEET_REVIEW*REVIEW_IA_AUTH* ($p = 0.276$). Thus, having face-to-face meetings between the AC and IAF to discuss the scope and results of IAF audits improves reporting reliability more when the AC also promotes the independence of the IAF. The corresponding result for promoting IAF authority is directionally consistent but much weaker. In summary, I interpret the results in Table 7 as evidence that utilizing the IAF as a resource yields greater benefits when the AC works to protect the value of that resource by promoting IAF independence.

Test of Hypothesis 4 – The 'busyness' of the AC

For my fourth hypothesis, I argue that the benefits to the AC of utilizing the IAF as a resource should increase with the busyness of AC members. To test this, I introduce the variable *BUSY_AC* to Equation (3), along with its interaction with all five factor variables. I measure the busyness of each AC by calculating the average number of board positions (across different companies) held by its members in each year. *BUSY_AC* is equal to one for ACs that average two or more board positions per member, and zero otherwise.[30] Results of this analysis are presented in Table 8. The interaction between *F1_MEET/REVIEW* and *BUSY_AC* is significantly negative ($p = 0.01$, marginal effect = -0.084), suggesting that face-to-face meetings between the AC and IAF help improve reporting reliability more when AC members are busy.[31] I interpret these results as

[30] I argue that having at least one additional board position on average (two total) is enough to tax the attention of AC members such that reliance on the IAF becomes more important. My results are robust to using three (p50) or four (p75) board positions as the cutoff in defining *BUSY_AC*.

[31] This result is also consistent with the interpretation that AC members with multiple board appointments are in greater demand as directors because of their ability, and more capable AC members may be more adept at utilizing an IAF effectively. To provide a test of H4 not subject to this alternative interpretation, I also measure AC busyness using the size of the AC. Inherent to this proxy is the assumption that smaller ACs must accomplish a similar amount of

evidence consistent with Hypothesis 4, that the value to the AC of meeting with the IAF (to discuss the scope and results of internal audits) is greater when AC members are stretched thin and need extra help in monitoring financial reporting.

Loan Analyses

In this section, I explore whether utilizing the IAF as a resource to the AC can benefit the firm in loan contracting by allowing for a relaxation of costly monitoring by private lenders.[32] I craft a sample of loan facilities (with data from DealScan) that are supplemented with borrower characteristics (including AC charter variables) measured as of the fiscal year end prior to loan origination. To maximize power, I use the base sample of 10,165 charters in this merge with DealScan. Requiring firm controls and charter data results in a sample of 3,017 loan facility observations (See Table 1, Panel C).

In un-tabulated univariate analysis, I compare variable means across the subsamples of contracts where *IA_INDICATOR* is equal to 1 and 0. Loan contracts for firms with ACs that have access to an IAF exhibit significantly smaller interest spreads, larger loan amounts, less collateralization, and fewer covenants, compared to those without. In multivariate analysis, I focus on interest spreads as a way to quantify a financial effect of utilizing the IAF. Specifically, I model spreads as a function of AC charter-based IAF variables and controls, estimating the following equation:

$$\begin{aligned} INTEREST_k = {} & \eta_0 + \eta_1 IAF\_Variable_{it} + \eta_2 SIZE_{it} + \eta_3 FIRMAGE_{it} + \eta_4 ROA_{it} \\ & + \eta_5 RATING_{it} + \eta_6 INTANGIBILITY_{it} + \eta_7 LEVERAGE_{it} + \eta_8 MTB_{it} \\ & + \eta_9 LOANSIZE_k + \eta_{10} MATURITY_k + Industry_m + Year_t + \varepsilon_k. \end{aligned} \quad (4)$$

oversight as larger ACs, such that, on average, the individual members of small ACs must undertake more duties. In un-tabulated analysis, I find that the association between *F1_MEET/REVIEW* and *RESTATEMENT* is significantly stronger when ACs are small (below the sample median of the number of AC members).

[32] I focus on bank lenders for the following reasons: First, bank lenders invest significantly in borrowers and thus have concentrated interests in their borrowers' performance and governance. Such strong incentives to monitor management make any observed relaxation of monitoring especially salient. Second, lenders have private access to borrowers and can more readily perceive and adjust to IAF monitoring activities. Third, the availability of objective measures of loan terms increases the validity of the empirical tests.

In this equation, $INTEREST_k$ is the all-in spread drawn from the DealScan database for loan *k*, in basis points over LIBOR. Because my sample of loan contracts does not coincide significantly with the AC charters I manually analyzed, I resort to the simpler count-based measures of IAF utilization available for all charters. $IAF\_Variable_{it}$ serves as a placeholder for one of $IA\_INDICATOR_{it}$, $HIGH\_IACOUNT_{it}$, or $LOG\_IACOUNT_{it}$, measured for borrower *i* of loan *k* as of year *t* prior to loan origination. In terms of firm and loan characteristics, I follow the debt contracting model of Campello and Gao (2017) by including borrower characteristics of borrower *i* in the fiscal year *t* ending prior to loan origination (including $SIZE_{it}$, $FIRMAGE_{it}$, ROA_{it}, $RATING_{it}$, $INTANGIBILITY_{it}$, $LEVERAGE_{it}$, MTB_{it}) and characteristics of loan *k* (including $LOAN\_SIZE_k$, and $MATURITY_k$). I also include fixed effects for year and industry.

Table 9 presents the results of estimating Equation (4). In column 1, *IA_INDICATOR* is significantly negatively associated with loan spreads ($p = 0.002$). The point estimate suggests that firms with ACs that utilize IAFs have loan spreads that are 31 basis points lower than firms with ACs that do not. The coefficient on *HIGH_IACOUNT* in column 2 is also significantly negative (*p*-value = 0.005). I interpret these results as evidence of a financial benefit that arises when ACs utilize the IAF more. Since the sample in column 3 is limited to observations for which *IA_INDICATOR* = 1, I interpret the negative coefficient on *LOG_IACOUNT* (*p*-value = 0.08) as evidence of an incremental loan pricing benefit to ACs utilizing the IAF above and beyond any effect of simply having an IAF. In summary, the more that ACs utilize the IAF at the time of lending negotiations, the lower their firms' cost of borrowing. These effects are robust to

controlling for the announcement of a restatement (un-tabulated), suggesting that lenders perceive benefits of IAF monitoring that extend beyond the reduction of restatements.[33]

I also examine loan spreads using the difference-in-differences design around the NYSE exogenous rule change, as discussed in Section 4.2 (i.e.: *INTEREST* = *TREAT* + *POST* + *TREAT*POST* + controls). Results are reported in Table 10. In column 1, the difference-in-differences estimator (α_3) is significant and negative (p = 0.03), suggesting that firms needing to comply with the IAF rule change experienced a greater decline in loan spreads relative to firms that had an IAF all along. This trend remains in the entropy-balanced sample as reported in column 2 (p = 0.07). I interpret these results as strong evidence that lenders perceive and price AC utilization of the IAF, resulting in cost savings for borrowers.

Additional Tests

I explore whether the benefits of utilizing the IAF as a resource to the AC manifest in ways other than restatements. In un-tabulated analysis, I find that when the AC utilizes the IAF, period-end reporting is more efficient (the number of days between a firm's fiscal year end and the date of the 10-K filing is smaller) and earnings management is reduced (the absolute value of discretionary accruals is lower). I also find some evidence that AC utilization of the IAF reduces the likelihood of a material weakness in internal control (especially when the AC promotes an environment of open communication).

Robustness

The potential for bias could arise in my tests if the choice to utilize an IAF is driven by unobserved factors which also drive the incidence of misstatements. To assess the meaningfulness of this potential bias, I follow Frank (2000) and Choudhary, Merkley, and Schipper (2019) in

[33] Loan pricing results are also robust to controlling for governance characteristics following the controls in Equation (1).

calculating the impact threshold an omitted variable must meet to invalidate my inferences at a significance level of 0.10 (un-tabulated). For example, in order for the baseline result in column 2 of Table 3 to be invalidated, an omitted variable would have to be correlated with both the test and outcome variables at 0.153 or greater. This seems unlikely given that the correlations between *RESTATEMENT* and observed covariates (Table 2, Panel B) are all lower than 0.12. When calculating impact thresholds for all reported tests (un-tabulated but available upon request), I conclude similarly that bias due to omitted correlated variables is unlikely to drive my results.

In further unreported analysis, I confirm that my inferences are robust to multiple alternative treatments, including the following: (1) estimation of parsimonious models by excluding the governance and audit control variables; (2) estimation using OLS instead of logistic regression when the dependent variable is binary; and (3) controlling for the number of references to the *external* auditor in the AC charter.

V. Conclusion

Because of inherent limitations, audit committees necessarily rely on a source of information about a firm's accounting and internal control processes in their financial reporting oversight role. I hypothesize that due to internal auditors' inside knowledge and objectivity, the internal audit function (IAF) can be a valuable source of information, if utilized by the audit committee (AC). I use data in AC charters to study the financial reporting reliability implications of ACs utilizing an IAF. In exploiting an exogenous NYSE rule change that required firms to have an IAF, I run difference-in-differences tests which show an increase in financial reporting reliability (fewer restatements) for firms that adopt an IAF to comply with the mandate, relative to firms that had IAFs all along. This improvement is concentrated in the set of firms that not only adopt a new IAF but also have ACs that utilize the new IAF significantly.

Using detailed content analyses of references to the IAF in AC charters, I provide insight into how ACs utilize IAFs and which activities result in financial reporting reliability improvements. Specifically, I find that the likelihood of a restatement is lower when the AC meets face-to-face and privately with the IAF, discussing the IAF work plan, their findings, and recommendations. These effects are stronger when the AC protects the flow and quality of information by ensuring open communication between the groups and by promoting the independence of the IAF in the organization. Furthermore, utilizing an IAF improves reporting reliability more when AC members are stretched thin by significant duties and multiple board appointments. I also provide evidence of an economic outcome of AC utilization of the IAF in the form of lower cost of private debt. By quantifying these benefits, my evidence informs the debate in practice as to whether IAF implementation is worth the investment. This study highlights that AC effectiveness in financial reporting oversight depends not only on readily observable AC characteristics like independence and expertise, but also on AC utilization of the IAF as a key resource.

Appendix A
Variable definitions

Variable		Definition
Test variables based on counts of IAF references in AC charters:		
IA_INDICATOR	=	one if the term "internal audit" appears in the audit committee charter one or more times; zero otherwise.
(LOG_IACOUNT) IA_COUNT	=	(the log of one plus) the number of times the term "internal audit" appears in the audit committee charter.
HIGH_IACOUNT	=	one if *IACOUNT* is above the sample median; zero otherwise.
TREAT	=	one for all observations for firms that make no mention of the IAF in their AC charter until after the NYSE rule change in 2004.
HIGH_TREAT	=	one for all observations for firms that make no mention of the IAF in their AC charter before the NYSE rule change in 2004 and are above the median number of IAF references after the rule change.
Test variables based on factor analysis of the various types of IAF references in AC charters:		
F1_MEET/REVIEW	=	a summary factor variable resulting from a factor analysis of all manually-coded IAF references in AC charters. *MEET/REVIEW* varies strongly with AC duties to (1) meet with the IAF and (2) review the IAF's scope, budget, and staffing.
F2_FINANCIAL	=	a summary factor variable resulting from a factor analysis of all manually-coded IAF references in AC charters. *FINANCIAL* varies strongly with AC duty to (1) review financial statement with the IAF, including alternative GAAP treatments, off-balance sheet arrangements, and the MD&A section.
F3_AUDIT	=	a summary factor variable resulting from a factor analysis of all manually-coded IAF references in AC charters. *AUDIT* varies strongly with AC duties to (1) review with the IAF the restrictions, problems, and disagreements they encountered in their audit work.
F4_INDEP	=	a summary factor variable resulting from a factor analysis of all manually-coded IAF references in AC charters. *INDEP* varies strongly with AC duty to review the IAF's authority in the organization and independence from management.
F5_COMPLIANCE	=	a summary factor variable resulting from a factor analysis of all manually-coded IAF references in AC charters. *COMPLIANCE* varies strongly with AC duty to review compliance and ethics with the IAF.
Test variables based individual types of IAF references in AC charters:		
OPEN_COM	=	one if the AC charter references a duty to maintain free and open communications among the AC, IAF, and external auditor; zero otherwise.
REVIEW_IA_INDEP	=	one for AC charters that include the duty to promote IA independence; zero otherwise.
REVIEW_IA_AUTHORITY	=	one for AC charters that include the duty to promote IA authority; zero otherwise.
Outcome variables:		
RESTATEMENT	=	one if the financial statements for firm *i* in year *t* were subsequently restated; zero otherwise.
INTEREST	=	the all-in spread drawn from the DealScan database (in basis points over LIBOR).
Other control variables:		
AC_EXPERTISE	=	one if firm *i* had an accounting financial expert on the AC in year *t* (zero otherwise). Accounting financial expert is defined as someone who has prior experience working as a(n): Auditor, Chief Financial Officer, Accounting Officer, Chief Accountant, Controller, Certified Public Accountant, Chartered Accountant, Head of Accounting, VP of Accounting, Accounting Director, Vice President of Finance, or Treasurer.
AC_MEETINGS	=	the number of meetings held by the audit committee of firm *i* in year *t*. (*TOP_ACMEETINGS* is an indicator equal to one if *AC_MEETINGS* is above the sample median.)
AC_SIZE	=	the number of audit committee members for firm *i* in year *t.*
ACQUISITION	=	one if there was an acquisition by firm *i* in year *t*; zero otherwise.
AUDITFEES	=	the natural log of audit fees for firm *i* in year *t*.
AUDITOREXPERTISE	=	one if audit office *j* for firm *i* has the most audit fees in MSA *y* for industry *x*; zero otherwise.
AUDITORTENURE	=	the number of consecutive years firm *i* has retained their auditor as of year *t*.

Appendix A, Cont.
Variable definitions

Variable		Definition
Control variables, cont.		
BIGN	=	one if firm *i* had a Big 4 auditor in year *t*; zero otherwise.
BOARD_INDEP	=	the ratio of independent board members to total board members for firm *i* in year *t*.
BOARD_SIZE	=	the total number of members of the board of directors for firm *i* in year *t*.
BUS_SEGMENTS	=	the natural log of the number of business segments for firm *i* in year *t*.
BUSY_AC	=	one for firm-year observations for which the average number of board positions held by AC members is greater than or equal to two; zero otherwise.
BUSY_BOARD	=	one if at least half of the independent board members for firm *i* serve simultaneously on at least three boards in year *t*; zero otherwise.
CEO_CHAIR	=	one if the CEO is Chairman of the Board for firm *i* in year *t;* zero otherwise.
FIRMAGE	=	the age of firm *i* in years as of year *t* (i.e., the number of years since first appearing in Compustat).
FOREIGN	=	the ratio of foreign sales to total sales for firm *i* in year *t*.
INDEP_DIR_TENURE	=	the average number of years independent directors have been board members for firm *i*.
INST_BLOCKHOLDERS	=	the number of institutional block-holders (minimum 5 percent stakeholders) of firm *i* in year *t*.
INST_OWNERSHIP	=	the percent of firm *i* owned by institutional owners in year *t.*
INTANGIBILITY	=	the ratio of intangible to total assets for firm *i* in year *t*.
INVENTORY	=	the ratio of inventory to total assets for firm *i* in year *t*.
ISSUANCE	=	one if firm *i* issued equity or debt equal to more than 10 percent of total assets in year *t*; zero otherwise.
LEVERAGE	=	the ratio of long-term debt to total assets for firm *i* in year *t*.
LOAN_SIZE	=	the log of loan size (in millions of dollars).
LOSS	=	one if firm *i* had net income less than 0 in year *t*; zero otherwise.
MATERIAL_WEAKNESS	=	one if firm *i* reported a SOX404 material weakness in internal control in year *t*; zero otherwise.
MATURITY	=	the loan's maturity in months.
MODOP	=	one if the auditor's report for firm *i* includes a qualified opinion (or unqualified with emphasis) in year *t*; zero otherwise.
MTB	=	the ratio of market capitalization to total common equity for firm *i* in year *t*.
NONAUDITFEES	=	the natural log of non-audit fees for firm *i* in year *t*.
NUMLENDER	=	the total number of lenders participating in the loan syndicate.
POST	=	one for all observations in years 2004 and later (after the NYSE IAF rule change)
RATING	=	the Compustat S&P credit rating, where a lower value represents a better credit rating.
RESTRUCTURE	=	one if firm *i* had restructuring in year *t*; zero otherwise.
ROA	=	the ratio of net income to total assets for firm *i* in year *t*.
SIZE	=	the natural log of total assets for firm *i* in year *t*.
ZSCORE	=	1.2 * (current assets - current liabilities / total assets) + 1.4 * (retained earnings / total assets) + 3.3 * (earnings before interest and taxes / total assets) + .6 *(market cap / total assets) + (sales / total assets).

Appendix B

Panel A: Brief descriptions of IAF-related references in AC charters and their frequency (n = 1,088)

Consult		**Communicate**		**External Audit**	
1. Review IA findings and results	64.8%	23. Meet periodically with IA	75.9%	41. Review perf/indep. of auditor with IA	18.2%
2. Review internal controls with IA	52.2%	24. Meet privately with IA	72.7%	42. Review external audit findings with IA	2.9%
3. Review management responses to findings	41.6%	25. Keep free/open communications with IA	41.7%	43. Review annual audit plan with IA	2.4%
4. Discuss accounting/reporting issues with IA	31.1%	26. Inquire about audit problems or difficulties	12.3%		
5. Discuss anything that IA chooses	21.5%	27. AC has unrestricted access to IA	4.1%	**IA audit committee duties**	
6. Review risk management with IA	20.3%			44. IA helps develop AC meeting agenda	0.6%
7. Review ethics and code of conduct with IA	15.5%	**Evaluate**		45. IA head serves as secretary to the AC	0.4%
8. Review legal/regulatory compliance with IA	14.6%	28. Assess performance	69.5%	46. IA provides training to the AC	0.5%
9. Review quarterly/annual financials with IA	7.8%	29. Hire/fire/evaluate IA head	46.1%	47. IA head is a member of the AC	0.2%
10. Review disagreements between IA and others	6.7%	30. Report IA performance to full board	15.4%		
11. Review management judgments with IA	6.3%			**Other**	
12. Discuss fraud with IA	5.5%	**Independence and authorization**		48. Charter refers to outsourced IA services	11.2%
13. Review MD&A with IA	5.2%	31. Review IA independence/objectivity	19.5%	49. AC permitted to rely on IA expertise	4.2%
14. Review manager perqs and expenses with IA	4.1%	32. IA reports directly to AC	9.7%	50. IA reports functionally to management	3.0%
15. Review related party transactions with IA	4.5%	33. Review IA status and authority	6.7%	51. Charter language suggests there is no IA	2.7%
16. Review off-balance sheet structures with IA	3.8%				
17. Discuss alternative GAAP methods with IA	3.7%	**Oversight**			
18. IA scope includes data security	2.5%	34. Review planned IA scope	76.5%		
19. Assign and review IA special investigations	2.2%	35. Review staffing and qualifications of IA	54.5%		
20. Discuss quality of accounting staff with IA	1.9%	36. Review IA budget	42.3%		
21. Discuss non-GAAP disclosures with IA	0.6%	37. Review IA coordination w/ ext. audit	37.6%		
22. IA runs the fraud hotline	0.3%	38. Ensure no unjustified restrictions on IA	9.7%		
		39. Review the IA charter	8.9%		
		40. Review effectiveness of IT usage in IA	0.7%		

This panel presents data resulting from my review of 1,088 randomly-selected AC charters. See Table 1, Panel B for a description of this sample. For each of these charters, I manually read each reference to the IAF and determine its classification. This process results in 51 unique types of IAF references. The grouping of individual types into the eight summary categories seen here is done for presentation purposes in this table only. See Table 5 for results of a factor analysis using these data and Panel B of this appendix for examples of the most common IAF references.

Appendix B

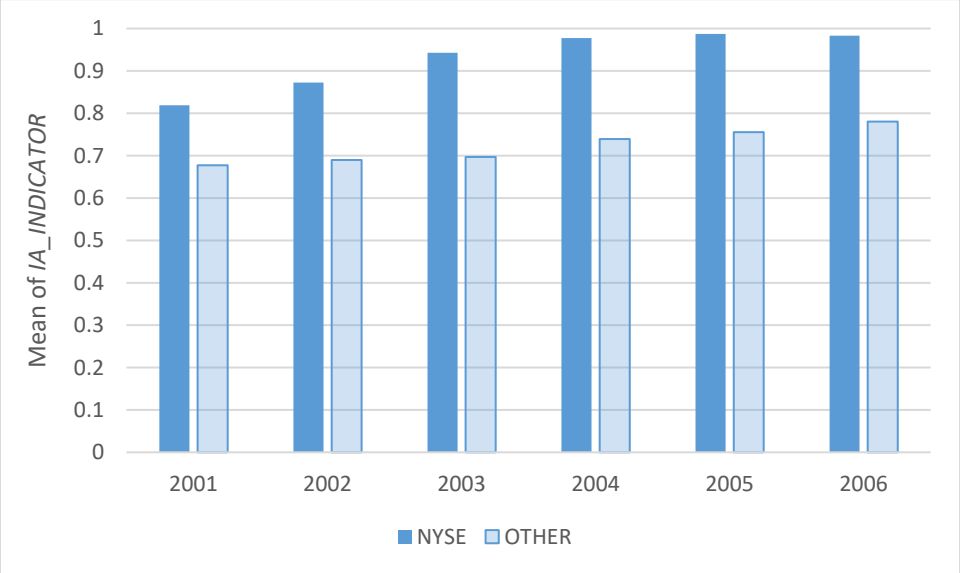
Panel B: Examples of the ten most common IAF-related references in AC charters

Description	Freq.	Company name (Date of proxy filing): Text of IAF reference in AC charter
Review planned IA scope (#34)	76.5%	Carolina National Corp. (2006-04-03): "The Board of Directors hereby delegates to the audit committee the authority to […] review and approve the proposed internal audit plan for the coming year."
Meet periodically with IA (#23)	75.9%	Radio One, Inc. (2004-04-27): "At least quarterly, the Audit Committee shall meet with each of the following: (i) the independent auditor; (ii) the Company's management; and (iii) the Company's internal audit function."
Meet privately with IA (#24)	72.7%	Crocs, Inc. (2006-10-06): "On a regular basis, [the AC shall] meet separately with the internal audit director (or equivalent position) to discuss any matters that the committee or internal audit believes should be discussed privately."
Assess performance (#28)	69.5%	XTO Energy (2004-04-21): "The Committee's primary responsibilities are to: assist the Board of Directors in its oversight of […] the performance of the Company's internal audit function."
Review IA findings and results (#1)	64.8%	First Indiana Corp. (2002-03-15): "[The AC shall] review significant reports prepared by the internal audit department."
Review staffing and qualifications of IA (#35)	54.5%	Sky Financial Group (2004-03-04): "[The AC shall] periodically review the adequacy of Internal Audit resources and the competency/ qualifications of individuals assigned to the function."
Review internal controls with IA (#2)	52.2%	Zimmer Holdings, Inc. (2003-3-24): "The Committee shall discuss the quality and adequacy of the Company's internal controls with management and the internal auditors."
Hire/fire/evaluate IA head (#29)	46.1%	PetSmart Inc. (2003-05-12): "[The AC shall] review and concur in the appointment, replacement, reassignment or discharge of the Director of Internal Audit."
Review IA budget (#36)	42.3%	Whole Foods Market, Inc. (2005-03-14): "[The AC is responsible for] reviewing and approving the annual internal audit plan and budget and assessing the appropriateness of resources allocated to internal auditing."
Keep free/open communications with IA (#25)	41.7%	Buckeye Technologies, Inc. (2001-09-26): "It is the responsibility of the committee to maintain free and open communication between the committee, independent auditors, the internal auditors and management of the Company."

This panel presents excerpts from AC charters as examples for each of the ten most common IAF reference types. The numbers in parentheses to the right of the variable descriptions correspond to the numbers assigned to each variable in Panel A of this appendix. The company names and proxy filing dates can be used to access the filings that contain the AC charters via www.sec.gov/edgar. While the process of assigning IAF references to types was intuitive, not all IAF references assigned to a certain type are exactly alike. As such, some judgment was required.

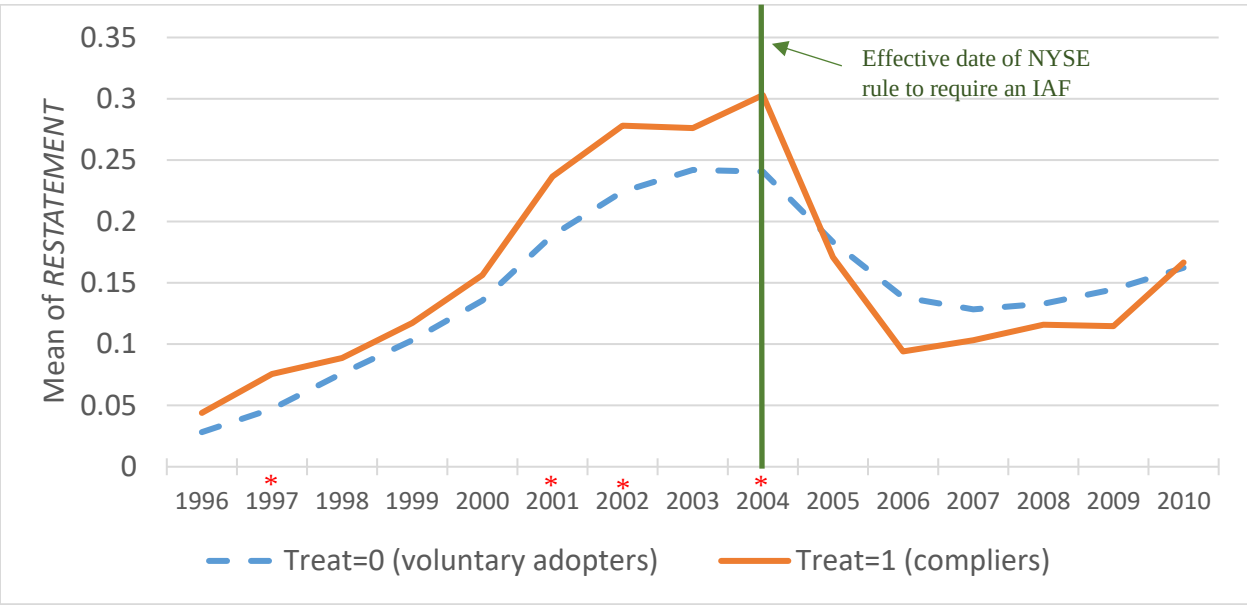
Figure 1

Time trend of *IA_INDICATOR* by stock exchange



This figure plots the mean values of *IA_INDICATOR* for each year from 2001 to 2006. *IA_INDICATOR* is equal to one for AC charters that make at least one reference to the IAF, and zero otherwise. The sample of charters is grouped by stock exchange (NYSE versus all other exchanges).

Figure 2
Time trend of *RESTATEMENT*



This figure illustrates the time trends of the mean of the variable *RESTATEMENT* for treatment and control firms. The sample is limited to those firms included in the tests in Table 5 (i.e., NYSE firms with AC charter data). Treatment firms (*TREAT* = 1) are those that "complied" with the 2004 rule change at NYSE which required listed firms to maintain an IAF that interfaces with the AC. Control firms (*TREAT* = 0) are those "early adopters" which maintained an IAF through the entire sample period (2000 – 2006). I measure *TREAT* using references to the IAF in AC charters. Years which exhibit statistically significant differences across treatment and control are marked with * (under one-tailed t-tests of differences in means).

Table 1
Sample Selection

Panel A: NYSE sample

	Firm years
Charter observations (2000-2006)	10,165
Require merge with Compustat	(594)
Require merge with Thomson-Reuters and BoardEx	(3,194)
Require merge with Audit Analytics	0
Firm years at the intersection of required databases	6,377
Require *NYSE* = 1	(3,401)
Drop 2002 and 2003 observations	(777)
Require data to compute variables	(153)
Firm years available for tests using the NYSE rule change	2,046

Panel B: Subsample for detail analysis of charter contents ("detailed sample")

	Firms	Firm years
Randomly select 100 firms from each tercile of firm size distribution, with:	300	
(1) *IA_INDICATOR* = 1 before and after the 2004 NYSE rule change		
(2) data to estimate restatement regressions		
Total charter observations for sample of 300 constant firms		923
Select full sample of unique NYSE firms with:	79	
(1) *IA_INDICATOR* = 0 in 2001 but 1 after 2004 NYSE rule change		
(2) data to estimate restatement regressions		
Total charter observations for sample of change firms		255
Total charter observations coded manually		1,178
Drop observations for which industry FE perfectly predicts *RESTATEMENT*		(90)
Firm years available for tests using sample of charters with detailed coding		1,088

Panel C: Loan contracting sample

	Facilities
Loan facilities in DealScan (2001-2007)	26,954
Require an AC charter observation for borrower in year prior to loan origination	(23,715)
Require data to compute variables	(222)
Facility observations available for loan contracting tests	3,017

Table 2
Descriptive statistics and correlations (n = 2,046)

Panel A: Descriptive statistics

Variable	Mean	P25	Median	P75	S.D.
Dependent variable and key test variables					
IA_COUNT	8.49	4.00	8.00	12.00	5.35
RESTATEMENT	0.18	0.00	0.00	0.00	0.38
TREAT	0.12	0.00	0.00	0.00	0.32
POST	0.69	0.00	1.00	1.00	0.46
Audit committee and governance variables					
AC_MEETINGS	6.95	4.00	6.00	9.00	3.51
AC_EXPERTISE	0.66	0.00	1.00	1.00	0.48
AC_SIZE	4.41	3.00	4.00	5.00	1.25
BOARD_SIZE	12.70	11.00	13.00	15.00	3.19
BOARD_INDEP	0.54	0.44	0.55	0.63	0.14
CEO_CHAIR	0.65	0.00	1.00	1.00	0.48
INDEP_DIR_TENURE	7.12	4.35	6.71	9.47	3.76
BUSY_BOARD	0.26	0.00	0.00	1.00	0.44
INST_OWNERSHIP	0.52	0.16	0.61	0.81	0.35
INST_BLOCKHOLDERS	2.04	1.00	2.00	3.00	1.53
Audit and auditor characteristics					
MATERIAL_WEAKNESS	0.05	0.00	0.00	0.00	0.22
MODOP	0.40	0.00	0.00	1.00	0.49
AUDITORTENURE	4.25	3.00	4.00	6.00	1.89
AUDITOREXPERTISE	0.64	0.00	1.00	1.00	0.48
AUDITFEES	14.18	13.35	14.16	14.95	1.20
NONAUDITFEES	12.76	11.91	13.04	14.15	2.56
BIGN	0.96	1.00	1.00	1.00	0.19
Firm characteristics					
MTB	3.05	1.61	2.21	3.44	3.22
FIRMAGE	27.97	12.00	23.00	44.00	17.19
SIZE	7.74	6.71	7.60	8.65	1.47
FOREIGN	0.54	0.00	0.10	0.98	0.74
BUS_SEGMENTS	1.08	0.69	1.39	1.61	0.63
ISSUANCE	0.35	0.00	0.00	1.00	0.48
LEVERAGE	0.22	0.07	0.20	0.32	0.18
ROA	0.05	0.02	0.04	0.08	0.07
LOSS	0.09	0.00	0.00	0.00	0.29
ACQUISITION	0.11	0.00	0.00	0.00	0.32
RESTRUCTURE	0.02	0.00	0.00	0.00	0.14
INVENTORY	0.10	0.00	0.05	0.15	0.13
ZSCORE	2.42	1.06	2.22	3.40	1.66

This table presents descriptive statistics (in Panel A) and select correlations (in Panel B) for variables used in the NYSE rule-change analyses (using the 'NYSE sample' as described in Panel A of Table 1). See Appendix A for all variable definitions.

Table 2, Cont.
Descriptive statistics and correlations (n = 2,046)
Panel B: Select correlations

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
1	*RESTATEMENT*																			
2	*TREAT*	0.02																		
3	*POST*	0.00	**-0.11**																	
4	*AC_MEETINGS*	0.02	**-0.06**	**0.5**																
5	*AC_EXPERTISE*	-0.02	**-0.05**	**0.29**	**0.2**															
6	*AC_SIZE*	-0.03	**-0.11**	**0.05**	**0.13**	**0.1**														
7	*BOARD_SIZE*	0.01	**-0.07**	**-0.12**	**0.16**	-0.04	**0.47**													
8	*BOARD_INDEP*	**-0.05**	**-0.19**	**0.46**	**0.23**	**0.17**	**0.27**	**0.05**												
9	*CEO_CHAIR*	**-0.06**	-0.03	**-0.07**	**-0.05**	**-0.04**	**0.10**	**0.08**	**0.18**											
10	*INDEP_DIR_TENURE*	-0.01	**0.08**	0.00	-0.01	**-0.11**	-0.01	**0.10**	**0.04**	0.02										
11	*BUSY_BOARD*	**-0.05**	-0.03	**-0.10**	-0.03	**-0.06**	**0.08**	**0.12**	0.00	**0.07**	**-0.05**									
12	*INST_OWNERSHIP*	-0.04	-0.01	**0.05**	**0.05**	**0.04**	**0.06**	**0.06**	**0.04**	0.02	**0.15**	0.01								
13	*MTB*	**-0.07**	-0.02	0.04	-0.03	0.02	0.03	0.02	0.00	0.04	0.01	**0.08**	0.02							
14	*SIZE*	**-0.04**	**-0.04**	0.03	**0.21**	-0.03	**0.36**	**0.57**	**0.12**	**0.17**	**0.05**	**0.22**	**0.07**	**0.23**						
15	*FOREIGN*	-0.02	-0.02	**0.04**	**0.05**	**0.06**	**0.06**	**0.04**	0.01	**-0.04**	**0.06**	**0.06**	**0.09**	**0.10**	**0.18**					
16	*BUS_SEGMENTS*	-0.02	-0.01	-0.03	0.01	0.03	**0.05**	**0.04**	0.02	-0.01	-0.04	0.02	**0.10**	-0.03	0.00	**-0.04**				
17	*ISSUANCE*	**0.04**	**0.08**	**-0.05**	**-0.10**	-0.01	**-0.15**	**-0.17**	**-0.05**	-0.02	**-0.08**	**-0.06**	-0.02	0.04	**-0.14**	**-0.08**	0.01			
18	*LEVERAGE*	0.00	**0.06**	**-0.05**	**-0.09**	-0.02	**-0.05**	**-0.08**	-0.02	0.00	**-0.12**	0.00	-0.01	-0.03	**-0.07**	**-0.12**	0.03	**0.41**		
19	*ROA*	**-0.12**	-0.01	**0.09**	-0.02	0.03	-0.02	**-0.06**	0.01	0.02	0.02	0.03	**0.06**	**0.34**	**0.18**	**0.07**	-0.02	**-0.06**	**-0.18**	
20	*LOSS*	**0.09**	0.01	**-0.11**	**-0.04**	-0.03	**-0.04**	**-0.05**	**-0.06**	-0.04	-0.02	0.01	-0.03	**-0.06**	**-0.14**	0.03	**0.08**	**0.04**	**0.11**	**-0.51**

This table presents descriptive statistics (in Panel A) and select correlations (in Panel B) for variables used in the NYSE rule-change analyses (using the 'NYSE sample' as described in Panel A of Table 1). See Appendix A for all variable definitions. Correlation coefficients in **boldface** are significant at the 0.10 level.

Table 3

Panel A: The financial reporting reliability effects of the 2004 NYSE rule change

	Dependent variable =		(1) *RESTATEMENT*				(2) *RESTATEMENT*			
	Sample:		Unbalanced				Entropy-balanced			
	Independent variable		Coefficient	z-stat		(Marg. Eff.)	Coefficient	*z*-stat		(Marg. Eff.)
AC and governance variables	*TREAT*	β_1	0.510	1.81	*	(0.061)	0.626	1.84	*	(0.073)
	POST	β_2	-0.090	-0.34		(-0.011)	-0.304	-0.66		(-0.036)
	*TREAT*POST*	β_3	-0.693	-2.22	**	(-0.083)	-1.021	-2.85	***	(-0.119)
	AC_MEETINGS		-0.028	-1.18			-0.019	-0.41		
	AC_EXPERTISE		-0.184	-1.17			-0.074	-0.30		
	AC_SIZE		-0.103	-1.47			-0.188	-1.72	*	
	BOARD_SIZE		0.028	0.87			-0.081	-1.58		
	BOARD_INDEP		-0.413	-0.62			-0.520	-0.51		
	CEO_CHAIR		-0.309	-2.04	**		-0.783	-3.40	***	
	INDEP_DIR_TENURE		0.004	0.16			0.027	1.02		
	BUSY_BOARD		-0.253	-1.48			-0.465	-1.96	**	
	INST_OWNERSHIP		-0.506	-2.13	**		-0.428	-1.14		
	INST_BLOCKHOLDERS		0.083	1.53			0.066	0.86		
Audit and auditor variables	*MATERIAL_WEAKNESS*		2.638	10.1	***		2.747	6.44	***	
	MODOP		0.356	2.41	**		0.534	2.36	**	
	AUDITORTENURE		0.075	1.43			0.115	1.22		
	AUDITOREXPERTISE		0.052	0.32			0.177	0.70		
	AUDITFEES		-0.044	-0.33			0.084	0.43		
	NONAUDITFEES		0.024	0.62			0.084	1.20		
	BIGN		0.477	1.00			-0.496	-0.74		
Firm variables	*MTB*		-0.043	-1.48			-0.073	-1.53		
	FIRMAGE		-0.004	-0.55			-0.006	-0.56		
	SIZE		0.088	0.85			0.169	1.00		
	FOREIGN		-0.073	-0.47			-0.064	-0.33		
	BUS_SEGMENTS		-0.185	-1.34			0.157	0.64		
	ISSUANCE		0.484	2.89	***		0.448	1.76	*	
	LEVERAGE		-0.127	-0.24			-0.449	-0.58		
	ROA		-2.899	-1.74	*		-1.489	-0.67		
	LOSS		0.096	0.39			0.425	1.19		
	ACQUISITION		-0.285	-1.23			-0.340	-1.06		
	RESTRUCTURE		0.209	0.49			1.082	1.06		
	INVENTORY		-0.039	-0.03			1.331	0.75		
	ZSCORE		-0.041	-0.48			-0.166	-1.40		
Sum of coefficients	$\beta_1 + \beta_3$	[χ2]	-0.183	[0.38]		(-0.022)	-0.396	[1.49]		(-0.046)
Fixed Effects			Industry				Industry			
Pseudo R^2			0.161				0.255			
Observations			2,046				2,046			

This table reports results of logistic regressions analyzing a 2004 NYSE rule change that required listed firms to maintain an IAF that interfaces with the AC. The sample consists of NYSE firms with at least one charter observation both before and after the rule change ('NYSE sample', as described in Panel A of Table 1). The dependent variable is *RESTATEMENT. TREAT* is equal to one for all observations for firms that made no mention of the IAF in their AC charter until after the rule change (compliers) and zero for all observations for firms that mention the IAF in their AC charter in both pre- and post-periods (early adopters). All other observations are removed from the sample. *POST* is equal to one for observations in 2004 and later. Continuous variables are winsorized at 1 and 99. Industry is defined using 2-digit SIC. *z*-statistics are based on standard errors clustered at the firm level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent levels.

Table 3, cont.

Panel B: The financial reporting reliability effects of the 2004 NYSE rule change

Dependent variable =		(1) *RESTATEMENT*			(2) *RESTATEMENT*		
Sample:		Unbalanced			Entropy-balanced		
Independent variable		Coefficient	z-stat	(Marg. Eff.)	Coefficient	z-stat	(Marg. Eff.)
HIGH_TREAT	γ_1	0.340	0.95	(0.041)	-0.141	-0.36	(-0.016)
POST	γ_2	-0.143	-0.56	(-0.017)	-0.697	-1.57	(-0.081)
*HIGH_TREAT*POST*	γ_3	-1.051	-2.21 **	(-0.127)	-1.069	-2.07 **	(-0.125)
Sum of coefficients							
$\gamma_1 + \gamma_3$ [χ^2]		-0.711	[3.58] *	(-0.086)	-1.210	[9.51] ***	(-0.141)
Controls		Yes			Yes		
Fixed Effects		Industry			Industry		
Pseudo R^2		0.162			0.259		
Observations		2,046			2,046		

This table reports results of logistic regressions analyzing a 2004 NYSE rule change that required listed firms to maintain an IAF that interfaces with the AC. The sample consists of NYSE firms with at least one charter observation both before and after the rule change ('NYSE sample, as described in Panel A of Table 1). The dependent variable is *RESTATEMENT. HIGH_TREAT* is equal to one for all observations for firms that made no mention of the IAF in their AC charter prior to the rule change but are above the sample median of *IA_COUNT* in the post period (compliers) and zero for all observations for firms that mention the IAF in their AC charter in both pre- and post-periods (early adopters). All other observations are removed from the sample. *POST* is equal to one for observations in 2004 and later. The intercepts and controls (following Equation (1)), while included in the regressions, are repressed for brevity. Continuous variables are winsorized at 1 and 99. Industry is defined using 2-digit SIC. *z*-statistics are based on standard errors clustered at the firm level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level.

Table 4

The financial reporting reliability effects of the 2004 NYSE rule change

		(1)			(2)		
Dependent variable =		***RESTATEMENT***			***RESTATEMENT***		
Sample:		**Unbalanced**			**Entropy-balanced**		
Independent variable		Coefficient	z-stat	(Marg. Eff.)	Coefficient	*z*-stat	(Marg. Eff.)
TREAT	δ_1	0.446	1.48	(0.054)	0.461	1.26	(0.053)
POST	δ_2	-0.348	-1.06	(-0.042)	-0.939	-1.74 *	(-0.108)
HIGH_IACOUNT	δ_3	-0.136	-0.52	(-0.016)	-0.257	-0.65	(-0.029)
*TREAT * POST*	δ_4	-0.045	-0.11	(-0.005)	0.062	0.12	(0.007)
*POST*HIGH_IACOUNT*	δ_5	0.378	1.11	(0.045)	0.850	1.63	(0.097)
*TREAT*POST*HIGH_IACOUNT*	δ_6	-1.064	-1.95 *	(-0.128)	-1.588	-2.69 ***	(-0.182)
Sum of coefficients							
$\delta_1 + \delta_4 + \delta_6$	[χ^2]	-0.664	[2.79] *	(-0.080)	-1.065	[6.02] ***	(-0.122)
$\delta_1 + \delta_4$	[χ^2]	0.401	[0.94]	(0.048)	0.523	[1.24]	(0.060)
Controls		Yes			Yes		
Fixed Effects		Industry			Industry		
Pseudo R^2		0.163			0.272		
Observations		2,046			2,046		

This table reports results of logistic regressions exploiting a 2004 NYSE rule change that required listed firms to maintain an IAF that interfaces with the AC. The sample consists of NYSE firms with at least one charter observation both before and after the rule change ('NYSE sample', as described in Panel A of Table 1). The dependent variable is *RESTATEMENT*. *TREAT* is equal to one for all observations for firms that made no mention of the IAF in their AC charter until after the rule change (compliers). *TREAT* is equal to zero for all observations for firms that mention the IAF in their AC charter in both pre- and post-periods (early adopters). All other observations are removed from the sample. *POST* is equal to one for observations in 2004 and later. *HIGH_IACOUNT* is equal to one (zero) when *IA_COUNT* is above (below) the sample median. The intercepts and controls (following Equation (1)), while included in the regressions, are repressed for brevity. Continuous variables are winsorized at 1 and 99. Industry is defined using 2-digit SIC. *z*-statistics are based on standard errors clustered at the firm level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level.

Table 5

Description of detailed AC charter data

Factor Analysis of 51 individual IAF references in AC Charters

Factor Name	Factor1 MEET/REVIEW	Factor2 FINANCIAL	Factor3 AUDIT	Factor4 INDEP	Factor5 COMPLIANCE
Eigenvalue	5.69	2.52	1.78	1.48	1.13
Variance explained	0.34	0.15	0.11	0.09	0.07
Cumulative var. explained	0.34	0.49	0.60	0.69	0.84
Rotated Factor Pattern (correlations between variables and factors)					
Evaluate_IA (#28)	**0.525**	0.110	0.075	0.136	0.008
Hire_Fire_CAE (#29)	*0.432*	0.018	0.104	0.099	0.151
AC_Report_to_Board (#30)	*0.333*	0.260	-0.055	-0.099	-0.010
Review_Indep (#31)	-0.008	-0.087	-0.044	**0.585**	-0.062
IA_Report_to_AC (#32)	0.155	0.026	-0.069	0.030	-0.084
Review_IA_Authority (#33)	-0.100	-0.088	-0.083	**0.546**	-0.078
Review_Scope (#34)	**0.513**	0.004	0.057	*0.349*	0.126
Review_Budget (#36)	**0.580**	0.105	-0.070	-0.027	0.098
Review_Staff (#35)	**0.600**	0.079	0.074	0.003	0.126
Audit_Restrictions (#38)	0.018	-0.032	**0.609**	0.035	0.082
Audit_Coordination (#37)	0.181	0.131	-0.067	*0.380*	0.008
Review_IACharter (#39)	0.045	0.020	0.105	0.147	-0.012
Report_to_Mgmt (#50)	0.089	0.025	-0.092	0.007	-0.080
Meet (#23)	**0.797**	0.031	0.183	0.299	0.018
Meet_Private (#24)	**0.788**	0.048	0.162	*0.301*	0.009
Open_Com (#25)	0.093	0.029	0.210	*0.377*	0.059
Free_Access (#27)	0.024	0.213	0.080	-0.017	0.046
Audit_Problems (#26)	-0.010	0.100	**0.743**	-0.005	0.114
Review_Findings (#1)	*0.368*	-0.079	0.212	0.345	0.124
Review_Responses (#3)	*0.381*	-0.045	*0.335*	0.084	0.176
Internal_Control (#2)	0.186	0.056	0.048	*0.485*	0.139
Fraud (#12)	0.007	0.070	0.013	0.259	-0.011
Compliance (#8)	0.217	0.034	-0.021	-0.076	**0.660**
Risk (#6)	0.121	0.062	0.048	*0.307*	0.129
Ethics (#7)	0.213	0.023	-0.057	-0.016	**0.706**

Continued on next page

Table 5, cont.

Description of detailed AC charter data

Factor Analysis of 51 individual IAF references in AC Charters

	Factor1	Factor2	Factor3	Factor4	Factor5
Factor Name	**MEET/REVIEW**	**FINANCIAL**	**AUDIT**	**INDEP**	**COMPLIANCE**
Eigenvalue	5.69	2.52	1.78	1.48	1.13
Variance explained	0.34	0.15	0.11	0.09	0.07
Cumulative var. explained	0.34	0.49	0.60	0.69	0.84

Rotated Factor Pattern, cont.

Accounting_Reporting (#4)	0.251	0.261	*0.426*	0.025	0.001
Discuss_Anything (#5)	0.257	0.160	0.275	0.052	-0.139
Accounting_staff (#20)	-0.070	0.164	0.106	0.108	*0.305*
Financials (#9)	0.015	**0.667**	0.148	0.060	0.017
Judgments (#11)	0.087	*0.345*	0.441	0.067	0.011
Perqs (#14)	-0.052	0.130	0.048	0.178	0.161
Alt_GAAP (#17)	0.096	**0.664**	0.015	0.052	0.053
Related_Parties (#15)	0.044	*0.380*	-0.014	0.047	0.217
Off_BS (#16)	0.054	**0.727**	0.036	0.092	0.049
MDA (#13)	0.040	**0.736**	0.151	0.003	-0.004
Disagreements (#10)	0.035	-0.036	**0.563**	0.009	-0.048
Special_investigations (#19)	0.084	0.246	-0.103	0.035	0.087
IT_Security (#18)	-0.008	0.094	0.114	0.040	0.044
Evaluate_Indep_Aud (#41)	*0.392*	0.139	-0.038	-0.076	0.212
Indep_Aud_Findings (#42)	-0.076	0.215	0.129	0.152	0.279
Indep_Aud_Plan (#43)	0.097	0.220	0.061	-0.052	-0.030
Reliance (#49)	0.180	0.157	-0.045	-0.125	-0.094
Outsource (#48)	0.244	0.160	-0.059	-0.090	-0.076
No_IA (#51)	-0.104	0.039	-0.031	0.035	-0.032

This table presents the results of a factor analysis of the 51 individual types of references to the IAF in the 'detailed sample' of AC charters from 2000 – 2006 that were manually coded (see Panel B of Table 1). Of these 51 variables, 7 were excluded from this factor analysis and all further tests because of low variation (less than 1 percent). The numbers in parentheses to the right of variable names correspond to the numbers in Appendix B where somewhat more detailed definitions are provided. Variables that are at least 50 percent (30 percent) correlated with the corresponding factor are shaded dark gray (light gray).

Table 6

The associations between IAF factor variables and *RESTATEMENT*

Dependent variable =	**(1)** ***RESTATEMENT***			**(2)** ***RESTATEMENT***		
Independent variable	Coefficient	*z*-stat	(Marg. Eff.)	Coefficient	*z*-stat	(Marg. Eff.)
F1_MEET/REVIEW	-0.238	-1.96 **	*(-0.029)*	-0.036	-0.25	*(-0.004)*
F2_FINANCIAL	-0.203	-1.58	*(-0.025)*	-0.273	-1.36	*(-0.033)*
F3_AUDIT	-0.075	-0.56	*(-0.009)*	-0.097	-0.44	*(-0.012)*
F4_INDEP	0.029	0.21	*(0.004)*	0.178	0.91	*(0.021)*
F5_COMPLIANCE	0.296	1.91 *	*(0.036)*	0.164	0.89	*(0.020)*
OPEN_COM				0.025	0.09	*(0.003)*
*F1_MEET/REVIEW * OPEN_COM*				-0.655	-2.46 **	*(-0.079)*
*F2_FINANCIAL * OPEN_COM*				0.130	0.50	*(0.016)*
*F3_AUDIT * OPEN_COM*				-0.027	-0.10	*(-0.003)*
*F4_INDEP * OPEN_COM*				-0.355	-1.22	*(-0.043)*
*F5_COMPLIANCE * OPEN_COM*				0.292	1.05	*(0.035)*
Controls	Yes			Yes		
Fixed Effects	Industry, Year			Industry, Year		
Pseudo R^2	0.217			0.228		
Observations	1,088			1,088		

This table reports results from logistic regressions relating the probability of restatement to IAF monitoring variables based on the 'detailed sample' of AC charters from 2000-2006 that were manually coded (see Panel B of Table 1). The dependent variable is *RESTATEMENT* and the test variables include the IAF factors described in Table 5. *OPEN_COM* is equal to one if the AC charter includes the duty to maintain free and open communications among the AC, the IAF, and the external auditor. See Appendix A for all variable definitions. The intercepts and controls (following Equation (1)), while included in the regressions, are repressed for brevity. Continuous variables are winsorized at 1 and 99. Industry is defined using 2-digit SIC. *z*-statistics are based on standard errors clustered at the firm level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level.

Table 7

The moderating effects of IAF independence

Dependent variable =	***RESTATEMENT***		
Independent variable	Coefficient	*z*-stat	(Marg. Eff.)
F1_MEET/REVIEW	-0.333	-2.63 ***	*(-0.040)*
F2_FINANCIAL	-0.276	-1.65 *	*(-0.033)*
F3_AUDIT	-0.071	-0.54	*(-0.009)*
F4_INDEP	-0.091	-0.61	*(-0.011)*
F5_COMPLIANCE	0.219	1.38	*(0.027)*
*F1_MEET/REVIEW * F4_INDEP*	-0.307	-2.12 **	*(-0.037)*
*F2_FINANCIAL * F4_INDEP*	0.248	1.36	*(0.030)*
*F3_AUDIT * F4_INDEP*	-0.023	-0.17	*(-0.003)*
*F5_COMPLIANCE * F4_INDEP*	-0.079	-0.43	*(-0.010)*
Controls	Yes		
Fixed Effects	Industry, Year		
Pseudo R^2	0.223		
Observations	1,088		

This table reports results from logistic regressions relating the probability of restatement to IAF monitoring variables based on the 'detailed sample' of AC charters from 2000-2006 that were manually coded (see Panel B of Table 1). The dependent variable is *RESTATEMENT* and the test variables include the IAF factors described in Table 5. See Appendix A for all variable definitions. The intercepts and controls (following Equation (1)), while included in the regressions, are repressed for brevity. Continuous variables are winsorized at 1 and 99. Industry is defined using 2-digit SIC. *z*-statistics are based on standard errors clustered at the firm level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level.

Table 8

The moderating effects of AC 'busyness'

Dependent variable =	***RESTATEMENT***		
Independent variable	Coefficient	*z*-stat	(Marg. Eff.)
F1_MEET/REVIEW	0.351	1.37	*(0.042)*
F2_FINANCIAL	0.224	0.63	*(0.027)*
F3_AUDIT	-0.521	-1.12	*(-0.063)*
F4_INDEP	0.048	0.16	*(0.006)*
F5_COMPLIANCE	-0.031	-0.07	*(-0.004)*
BUSY_AC	0.412	1.24	*(0.050)*
*F1_MEET/REVIEW * BUSY_AC*	-0.697	-2.58 ***	*(-0.084)*
*F2_FINANCIAL * BUSY_AC*	-0.448	-1.19	*(-0.054)*
*F3_AUDIT * BUSY_AC*	0.464	0.95	*(0.056)*
*F4_INDEP * BUSY_AC*	0.370	0.81	*(0.045)*
*F5_COMPLIANCE * BUSY_AC*	-0.031	-0.10	*(-0.004)*
Controls	Yes		
Fixed Effects	Industry, Year		
Pseudo R^2	0.227		
Observations	1,088		

This table reports results from logistic regressions relating the probability of restatement to IAF monitoring variables based on the 'detailed sample' of AC charters from 2000-2006 that were manually coded (see Panel B of Table 1). The dependent variable is *RESTATEMENT* and the test variables include the IAF factors described in Table 5. *BUSY_AC* is an indicator variable equal to one if the average number of board positions held by AC members is greater than or equal to two. See Appendix A for all variable definitions. The intercepts and controls (following Equation (1)), while included in the regressions, are repressed for brevity. Continuous variables are winsorized at 1 and 99. Industry is defined using 2-digit SIC. *z*-statistics are based on standard errors clustered at the firm level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level.

Table 9

The association between IAF variables and loan spreads

	(1)			(2)			(3)		
Dependent variable =	***INTEREST***			***INTEREST***			***INTEREST***		
IAF variable =	***IA_INDICATOR***			***HIGH_IACOUNT***			***LOG_IACOUNT***		
	Coefficient	*t*-stat		Coefficient	*t*-stat		Coefficient	*t*-stat	
IAF Variable	-30.714	-3.17	***	-13.065	-2.80	***	-7.155	-1.75	*
SIZE	-5.468	-2.28	**	-6.084	-2.58	***	-4.559	-1.92	*
FIRMAGE	-0.449	-2.58	***	-0.483	-2.75	***	-0.500	-2.89	***
ROA	-232.399	-5.86	***	-225.401	-5.68	***	-251.389	-5.92	***
RATING	2.587	4.62	***	2.718	4.82	***	2.791	4.79	***
INTANGIBILITY	19.504	1.24		14.751	0.91		34.106	2.09	**
LEVERAGE	117.896	7.14	***	115.911	6.90	***	106.381	6.36	***
MTB	-1.154	-0.46		-1.468	-0.58		-0.637	-0.23	
MATURITY	1.174	9.82	***	1.157	9.69	***	1.174	9.85	***
LOAN_SIZE	-27.280	-9.65	***	-27.530	-9.76	***	-28.690	-10.01	***
NUM_LENDER	-1.151	-2.96	***	-1.151	-2.87	***	-1.303	-4.24	***
Fixed Effects	Industry, Year			Industry, Year			Industry, Year		
Adjusted R^2	0.48			0.48			0.49		
Observations	3,017			3,017			2,734		

This table reports results from OLS regressions relating interest spreads in private loan agreements (from 2001 to 2007) to IAF monitoring variables based on AC charters from 2000-2006. The sample consists of all loan facility observations in DealScan that can be matched to a charter observation available as of the fiscal year ended prior to loan origination. The dependent variable is *INTEREST* and the test variable is one of *IA_INDICATOR*, *HIGH_IACOUNT*, and *LOG_IACOUNT* (following Equation (4)). In column 3, the sample is restricted to loan facilities for which *IA_INDICATOR* = 1. See Appendix A for all variable definitions. Continuous variables are winsorized at 1 and 99. Industry is defined using 2-digit SIC. *t*-statistics are based on standard errors clustered at the firm level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively. Intercepts, while included in the regressions, are repressed for brevity.

Table 10

Loan spreads around the 2004 NYSE rule change

		(1)			(2)		
Dependent variable =		***INTEREST***			***INTEREST***		
Sample:		**Unbalanced**			**Entropy-balanced**		
		Coefficient	*t*-stat		Coefficient	*t*-stat	
TREAT	α_1	87.866	1.75	*	59.639	2.48	**
POST	α_2	-21.161	-2.78	***	-2.626	-0.27	
*TREAT * POST*	α_3	-108.707	-2.13	**	-73.481	-1.77	*
Sum of coefficients							
$\alpha_1 + \alpha_3$ [*F*-stat]		-20.841	[2.68]		-13.842	[0.32]	
Controls		Yes			Yes		
Fixed Effects		Industry			Industry		
Adjusted R^2		0.491			0.671		
Observations		1,210			1,210		

This table reports results of OLS tests exploiting a 2004 NYSE rule change that required listed firms to maintain an IAF that interfaces with the AC. The sample consists of all loan facility observations between 2001 and 2007 for NYSE firms with at least one charter observation both before and after the rule change. The dependent variable is *INTEREST*. *TREAT* is equal to one for all observations for firms that made no mention of the IAF in their AC charter until after the rule change (compliers). *TREAT* is equal to zero for all observations for firms that mention the IAF in their AC charter in both pre- and post-periods (early adopters). All other observations are removed from the sample. *POST* is equal to one for observations in 2004 and later. The intercepts and controls (following Equation (4)), while included in the regressions, are repressed for brevity. Continuous variables are winsorized at 1 and 99. Industry is defined using 2-digit SIC. *t*-statistics are based on standard errors clustered at the firm level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

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